IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE
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CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON, D. C.

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1949, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Fifth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Stockholm, 1948, and given in detail on pages 2 to 10 of the report CRPL-F53, "Ionospheric Data," issued January 1949.

For symbols and terminology used with data prior to January 1949, see report IRPL-C61, "Report of International Radio Propagation Conference, Washington, 17 April to 5 May, 1944," previous issues of the F series, in particular, IRPL-F5, CRPL-F24, F33, F50, and report CRPL-7-1, "Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records."

Following the recommendations of the Washington (1944) and Stockholm (1948) conferences, beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

In addition to the conventions for the determination of medians given in Appendix 5 of Document No. 293 E of the Stockholm conference, which are listed on pages 9 and 10 of CRPL-F53, the following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given on pages 2-9 of CRPL-F53 (Appendixes 1-4 of Document No. 293 E referred to above).

a. For all ionospheric characteristics:

Values missing because of A, B, C, F, L, M, N, Q, R, S, or T (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count. See CRPL-F38, page 9.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

Values missing because of W are counted:

1. For foF2, as equal to or less than the median when it is apparent that h'F2 is unusually high; otherwise, values missing because of W are omitted from the median count.
2. For h'F2, as equal to or greater than the median.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of G (no Es reflections observed, the equipment functioning normally otherwise) are counted as equal to or less than the median foE, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number					
	1950	1949	1948	1947	1946	1945
December	86	108	114	126	85	38
November	87	112	115	124	83	36
October	90	114	116	119	81	23
September	91	115	117	121	79	22
August	96	111	123	122	77	20
July	101	108	125	116	73	
June	103	108	129	112	67	
May	102	108	130	109	67	
April	101	109	133	107	62	
March	103	111	133	105	51	
February	103	113	133	90	46	
January	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 45 and figures 1 to 90 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
- Brisbane, Australia
- Canberra, Australia
- Hobart, Tasmania

The Royal Netherlands Meteorological Institute:
- De Bilt, Holland

Radio Regulatory Commission, Tokyo, Japan:
Akita, Japan
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

Radio Wave Research Laboratories, National Taiman University, Taipeh, Formosa, China:
Formosa, China

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
Campbell I.

Norwegian Defense Research Establishment, Kjeller per Lillestrom, Norway:
Oslo, Norway

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Laboratory of Electronics, Chalmers University of Technology, Gothenberg, Sweden:
Kiruna, Sweden

United States Army Signal Corps:
Okinawa I.

National Bureau of Standards (Central Radio Propagation Laboratory):
Boston, Massachusetts (Harvard University)
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
San Francisco, California (Stanford University)
San Juan, Puerto Rico (University of Puerto Rico)
Trinidad, British West Indies
Washington, D. C.
White Sands, New Mexico

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 46 to 57 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at a new location, Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D. C.

Table 58 presents ionosphere character figures for Washington, D. C., during December 1950, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Table 59 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, November 1950, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day Cheltenham, Maryland, geomagnetic K-figures.

The radio propagation quality figures are prepared from radio traffic and ionospheric data reported to the CRPL, in a manner basically the same as that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," issued February 1, 1946. The scale conversions for each report are revised for use with the data beginning January 1948, and statistical weighting replaces what was, in effect, subjective weighting. Separate master distribution curves of the type described in IRPL-R31 were derived for the part of 1946 covered by each report; data received only since 1946 are compared with the master curve for the period of the available data. A report whose distribution is the same as the master is thereby converted linearly to the C-figure scale. Each report is given a statistical weight which is the reciprocal

of the departure from linearity. The half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

These radio propagation quality figures give a consensus of opinion of actual radio propagation conditions as reported by the half day over the two general areas. It should be borne in mind, however, that though the quality may be disturbed according to the CRPL scale, the cause of the disturbance is not necessarily known. There are many variables that must be considered. In addition to ionospheric storminess itself as the cause, conditions may be reported as disturbed because of seasonal characteristics such as are particularly evident in the pronounced day and night contrast over North Pacific paths during the winter months, or because of improper frequency usage for the path and time of day in question. Insofar as possible, frequency usage is included in rating the reports. Where the actual frequency is not shown in the report to the CRPL, it has been assumed that the report is made on the use of optimum working frequencies for the path and time of day in question. Since there is a possibility that all disturbance shown by the quality figures is not due to ionospheric storminess alone, care should be taken in using the quality figures in research correlations with solar, auroral, geomagnetic, or other data. Nevertheless, these quality figures do reflect a consensus of opinion of actual radio propagation conditions as found on any one half day in either of the two general areas.

OBSERVATIONS OF THE SOLAR CORONA

Tables 60 through 62 give the observations of the solar corona during December 1950 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 63 through 65 list the coronal observations obtained at Sacramento Peak, New Mexico, during December 1950, derived by the High Altitude Observatory from spectrograms taken by Harvard University as a part of its performance of an Air Materiel Command research and development contract administered by the Air Force Cambridge Research Laboratories. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 60 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 61 gives similarly the intensities of the first red (6374A) coronal line; and table 62, the intensities of the second red (6702A) coronal line; all observed at Climax in December 1950.

Table 63 gives the intensities of the green (5303A) coronal line; table 64, the intensities of the first red (6374A) coronal line; and table 65, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in December 1950.

The following symbols are used in tables 60 through 65: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

Tables 66 and 67 give details of the Climax and Sacramento Peak observations, respectively, from July 1950 through December 1950. The first column lists the Greenwich date of observation; the following columns give the threshold or lowest observable intensity of 5303A for each spectrum plate centered at the astronomical position angle indicated; the last two columns indicate the observer and the person responsible for the intensity estimates of the observation. These tables continue the presentation of coronal data in the manner of table 1 of CRPL-1-4 and appear in the F series regularly at intervals of six months.

RELATIVE SUNSPOT NUMBERS

Table 68 presents the daily American relative sunspot number, R_A, computed from observations communicated to CRPL by observers in America and abroad. Beginning with the observations for January 1948, a new method of reduction of observations is employed such that each observer is assigned a scale-determining "observatory coefficient," ultimately referred to Zürich observations in a standard period, December 1944 to September 1945, and a statistical weight, the reciprocal of the variance of the observatory coefficient. The daily numbers listed in the table are the weighted means of all observations received for each day. Details of the procedure are given in the Publication of the Astronomical Society of the Pacific, issued February 1949, in an article entitled "Reduction of Sunspot-Number Observations." The American relative sunspot number computed in this way is designated R_A. It is noted that a number of observatories abroad, including the Zürich observatory, are included in R_A. The scale of R_A was referred specifically to that of the Zürich relative sunspot numbers in the standard comparison period; since that time, R_A is influenced by the Zürich observations only in that Zürich proves to be a consistent observer and receives a high statistical weight. In addition this table lists the daily provisional Zürich sunspot numbers, R_Z.

OBSERVATIONS OF SOLAR FLARES

Table 69 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U.S. Naval, Wendelstein, Kanzel, and High Altitude at Boulder, Colorado. The remainder report to Meudon (Paris), and the data are taken from the Paris URSIgram broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Boulder, Colorado are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

INDICES OF GEOMAGNETIC ACTIVITY

Table 70 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary mean 3-hourly K-indices, Kw; (2) preliminary international character-figures, C; (3) geomagnetic planetary three-hour-range indices, Kp; (4) magnetically selected quiet and disturbed days.

Kw is the arithmetic mean of the K-indices from all reporting observatories for each three hours of the Greenwich day, on a scale 0 (very quiet) to 9 (extremely disturbed). The C-figure is the arithmetic mean of the subjective classification by all observatories of

each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 to 9, expressed in thirds of a unit, e.g., 5- is 4 2/3, 5o is 5 0/3, and 5 + is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Tables of Kp for 1945-48 are in Bulletin 12b; for 1940-44 and 1949, in these CRPL-F reports, F65-67; for 1950, monthly in F68 and following issues. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles Kw, C and selected days. The Chairman of the Committee computes the planetary index.

SUDDEN IONOSPHERE DISTURBANCES

Tables 71 and 72 list the sudden ionosphere disturbances observed at Fort Belvoir, Virginia, December 1950, and at Brentwood and Somerton, England, November 1950, respectively.

ERRATUM

CRPL-F76, p. 21, table 44: May 1950 should read May 1949.

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D.C. (38.7°N, 77.1°W) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	2.8						2.8
01	(300)	2.8						2.9
02	290	3.1						3.0
03	270	3.3						3.0
04	260	3.0					2.4	3.0
05	250	2.9						3.1
06	(270)	2.7						3.0
07	250	3.4						3.1
08	230	6.0			(120)	(2.0)		3.4
09	230	7.2	---	---	110	(2.5)		3.4
10	230	7.8	220	---	(110)	2.8		3.4
11	240	8.6	210	---	(110)	2.9		3.3
12	250	8.6	220	---	(110)	3.0		3.3
13	260	8.9	220	---	(110)	3.0		3.2
14	250	8.9	230	---	(100)	2.8		3.2
15	240	8.7	230	---	(110)	(2.5)		3.2
16	230	(8.4)	---	---	(120)	2.0		(3.3)
17	220	7.2					1.9	3.3
18	220	5.7						3.2
19	230	4.5						3.2
20	(260)	3.4						3.1
21	(290)	2.8						2.9
22	(300)	(2.6)						2.8
23	(300)	2.7						2.9

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Kiruna, Sweden (67.8°N, 20.5°E) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.1	
01	(320)	(4.2)					4.3	
02	(305)	(3.8)					4.1	
03	320	4.0					3.2	
04	290	4.0						
05	(270)	(3.8)					2.5	
06	(255)	2.8						
07	(260)	3.6						
08	250	4.0						
09	240	5.5						
10	240	5.6						
11	235	6.3						
12	230	6.6						
13	235	6.2						
14	230	5.9					2.0	
15	230	5.2						
16	245	4.6					2.2	
17	250	3.8					3.5	
18	255	3.8					2.8	
19	(260)	(3.3)					3.9	
20	---	---					4.1	
21	- -	(4.2)					4.6	
22	---	---					4.2	
23	---	---					4.2	

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 30 seconds.

Table 3

Oslo, Norway (60.0°N, 11.0°E) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	2.3						(2.8)
01	320	(2.2)					1.6	(2.8)
02	320	2.1					1.5	2.9
03	310	1.9						2.9
04	300	2.0						(3.0)
05	300	1.9						(3.0)
06	300	(1.8)						3.0
07	270	2.4						3.1
08	235	3.8						3.4
09	220	(5.6)	---	---	---	1.9	1.9	3.5
10	220	6.7	220	---	(120)	2.0	2.1	3.6
11	220	7.3	220	---	125	2.2	2.3	3.5
12	220	7.4	220	3.2	125	2.2	2.3	3.5
13	220	7.4	225	3.4	125	2.2	2.4	3.5
14	215	7.2	230	---	140	(2.1)	2.2	3.5
15	215	6.6			150	1.8	1.8	3.5
16	215	6.2			---	---	1.9	3.4
17	220	(5.6)						(3.3)
18	220	(4.8)						(3.3)
19	230	(3.1)						3.3
20	255	2.5						3.1
21	300	(2.3)						(3.0)
22	335	(2.2)						2.9
23	345	(2.2)						(2.9)

Time: 16.0°E.
Sweep: 1.3 Mc to 14.0 Mc in 8 minutes, automatic operation.

Table 4

Boston, Massachusetts (42.4°N, 71.2°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0						2.9
01	280	3.0						3.0
02	290	3.0						3.0
03	270	2.9						3.0
04	260	2.9						3.0
05	250	2.7						3.0
06	270	2.7						3.0
07	220	4.8			---	---		3.4
08	210	6.1	---	---	110	2.3		3.4
09	230	6.9	200	3.7	110	2.5		3.4
10	230	7.6	210	3.6	120	2.7		3.4
11	240	8.4	210	3.8	120	2.8		3.3
12	230	8.5	210	3.9	120	2.8		3.3
13	230	8.4	220	3.9	120	2.8		3.3
14	220	8.3	220	3.6	120	2.6		3.3
15	220	7.9	---	---	120	2.4		3.3
16	220	7.4						3.3
17	220	6.6						3.3
18	220	6.0						3.2
19	240	4.7						3.2
20	250	4.2						3.1
21	270	3.5						3.0
22	290	3.2						2.9
23	300	3.0						2.9

Time: 75.0°W.
Sweep: 0.8 Mc to 14.0 Mc in 1 minute.

Table 5

San Francisco, California (37.4°N, 122.2°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2						3.1
01	280	(3.1)						3.0
02	280	(3.2)						3.0
03	280	3.2						3.0
04	300	(3.1)						3.0
05	300	3.1						2.9
06	290	3.2						3.0
07	240	5.0						3.3
08	240	7.3	230	(3.2)	120	---		3.4
09	240	7.6	220	3.8	120	2.7		3.4
10	240	8.2	(220)	4.2	120	---		3.3
11	250	8.6	(220)	4.4	110	---		3.2
12	250	8.9	220	4.5	110	---		3.2
13	260	8.4	240	4.4	120	---		3.2
14	250	8.4	(240)	4.2	120	---		3.2
15	240	7.8	(240)	3.7	120	2.7		3.4
16	220	7.4	---	---	120	---		3.4
17	220	6.2						3.4
18	220	4.3						3.2
19	240	(3.7)						3.3
20	260	(2.9)					2.8	3.2
21	270	2.8					2.7	3.2
22	270	2.8						3.0
23	300	(3.0)					2.4	(3.0)

Time: 120.0°W.
Sweep: 1.3 Mc to 18.0 Mc in 4 minutes.

Table 6

White Sands, New Mexico (32.3°N, 106.5°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	(3.4)					3.9	(2.9)
01	260	3.4					3.1	3.0
02	260	3.3					2.8	3.0
03	260	3.4					2.8	3.0
04	260	3.2					3.5	2.8
05	300	3.2					2.8	2.8
06	280	3.2					3.9	2.8
07	240	5.8	---	---	(120)	(2.0)	3.2	3.2
08	240	7.7	220	---	(110)	(2.6)	4.9	3.3
09	250	8.4	220	---	110	(2.9)	5.2	3.2
10	250	9.0	220	(4.5)	110	(3.1)	5.1	3.2
11	260	9.2	220	(4.5)	(110)	3.3	5.2	3.2
12	260	9.2	220	(4.6)	110	3.4	5.2	3.1
13	260	9.3	220	(4.4)	110	(3.3)	5.4	3.1
14	260	9.2	230	---	110	3.4	5.2	3.2
15	240	8.6	230	---	110	(3.3)	5.0	3.2
16	230	8.2			(110)	(3.1)	4.8	3.2
17	220	7.0			(110)	(2.8)	3.4	3.3
18	220	4.8			---	(2.3)	3.4	3.2
19	240	4.1			---	---	4.8	3.1
20	(240)	(3.2)					4.8	3.1
21	(270)	(3.0)					4.8	(2.9)
22	280	3.1					5.0	3.9
23	280	(3.4)					3.6	(2.8)

Time: 105.0°W.
Sweep: 0.8 Mc to 14.0 Mc in 2 minutes.

Table 7

Okinawa I. (26.3°N, 127.7°E) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(260)	(4.2)						3.0
01	(250)	3.8						3.0
02	(240)	3.6						3.1
03	(240)	3.8						3.2
04	(230)	(3.2)						3.3
05	(260)	(3.1)						2.9
06	(250)	3.5						3.1
07	220	7.2			(120)	(2.1)		3.5
08	230	8.5	230	---	100	(2.7)		3.5
09	240	9.6	220	---	100	3.0		3.3
10	250	10.6	220	---	(100)	3.3		3.3
11	250	11.5	210	---	100	(3.4)	3.6	3.3
12	260	11.8	210	---	(100)	3.4	4.0	3.1
13	260	13.2	(220)	---	110	3.3	5.0	3.2
14	250	13.4	220	---	110	3.2	4.8	3.3
15	240	12.6	220	---	110	2.9	4.2	3.3
16	220	11.2	(220)	---	110	---	4.2	3.3
17	210	9.6			---	---	3.2	3.4
18	(200)	(8.0)					3.0	(3.3)
19	(220)	6.6					2.5	3.0
20	(220)	7.0						3.2
21	(220)	6.8						3.2
22	(220)	5.2						3.1
23	(250)	4.6						3.0

Time: 127.5°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconde, automatic operation.

Table 8

Maui, Hawaii (20.8°N, 156.5°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.9						3.0
01	240	3.4						3.0
02	240	3.3						3.2
03	240	2.9						3.2
04	240	2.1						2.9
05	310	2.0					1.6	2.7
06	310	2.4					1.8	2.8
07	250	5.8			130	1.8	2.5	3.3
08	240	8.2	230	---	110	2.6	4.6	3.3
09	270	9.8	220	---	110	2.9	5.8	3.1
10	270	11.6	210	4.6	110	3.2	5.4	3.2
11	280	12.3	210	4.7	110	3.3	5.3	3.1
12	280	13.5	200	4.8	100	3.4	4.8	3.0
13	280	14.0	210	4.7	100	3.4	4.4	3.1
14	270	14.3	220	4.6	100	3.2	4.6	3.0
15	250	14.4	220	4.1	100	3.0	4.4	3.2
16	230	12.8	230	---	110	2.8	4.4	3.2
17	220	10.6			120	2.1	4.6	3.4
18	200	7.8					4.4	3.4
19	210	5.6					4.2	3.2
20	230	5.2					3.9	2.8
21	240	5.3					2.2	3.0
22	230	5.0					2.0	3.0
23	240	4.1					1.5	3.0

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconde.

Table 9

San Juan, Puerto Rico (18.2°N, 66.0°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(240)	4.4						2.8
01	(240)	4.4						2.8
02	230	4.6						2.9
03	(220)	4.4						2.9
04	---	3.7						2.7
05	---	3.5						2.6
06	---	3.6						2.7
07	230	(6.0)						3.1
08	260	7.9				3.0		3.1
09	270	9.2		4.8		3.2		3.1
10	280	10.0		4.8		(3.4)		3.1
11	280	10.2		4.9		3.6		3.0
12	280	10.0		5.0		3.6		3.0
13	280	(10.1)		4.9		3.6	4.4	(3.0)
14	270	9.7		4.8		3.4	4.0	3.0
15	280	9.2		---		3.3	4.3	3.0
16	270	9.1		4.9		(3.0)	3.8	3.0
17	250	(8.3)				---		(3.1)
18	230	(6.6)						---
19	230	(5.2)						(2.9)
20	(240)	(4.3)						2.9
21	---	(4.3)						(2.8)
22	---	(4.6)						(2.8)
23	(250)	(4.4)						2.8

Time: 60.0°W.
Sweep: 2.8 Mc to 13.0 Mc in 9 minutes, automatic operation; supplemented by manual operation.

Table 10

Guam I. (13.6°N, 144.9°E) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	8.5					1.8	3.1
01	250	8.5						3.2
02	230	8.3						3.4
03	230	5.9						3.5
04	230	4.5						3.2
05	250	3.5					1.5	3.1
06	260	3.8					1.9	2.9
07	250	7.1	---	---	120	(2.2)		3.3
08	260	9.2	240	---	120	2.8		3.2
09	280	10.7	220	---	110	3.0	3.6	3.1
10	280	11.2	210	---	110	3.2		2.8
11	290	11.4	200	---	110	(3.3)		2.5
12	300	11.0	200	---	110	(3.4)	3.9	2.5
13	300	11.2	200	---	110	(3.4)	4.0	2.6
14	290	11.6	220	---	110	(3.2)	4.2	2.7
15	280	12.2	220	---	(110)	(3.0)	4.6	2.9
16	270	12.2	230	---	120	2.8	4.4	2.9
17	250	12.2	240	---	---	---	4.6	2.9
18	250	11.6					4.1	3.0
19	260	11.1					2.7	3.0
20	250	(10.2)					4.0	(2.9)
21	250	9.5					4.3	3.0
22	240	8.8					3.6	3.0
23	240	8.3					2.6	3.0

Time: 150.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 11

Trinidad, Brit. West Indies (10.6°N, 61.2°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	4.8						3.3
01	230	4.4						3.4
02	230	3.8						3.4
03	250	3.3						3.3
04	260	3.0						3.1
05	260	3.0						3.2
06	230	4.4			---	---	2.3	3.4
07	220	7.2			110	2.4	3.1	3.6
08	240	8.3	220	4.3	100	3.0	3.6	3.5
09	250	10.0	200	4.6	110	3.2	4.0	3.6
10	250	10.4	200	4.8	100	3.5	4.4	3.5
11	260	10.5	200	4.9	100	3.6	4.5	3.5
12	250	10.2	200	4.9	100	3.6	4.8	3.4
13	260	10.0	200	4.8	100	3.6	4.6	3.4
14	250	10.2	200	4.7	100	3.4	4.4	3.4
15	250	9.7	220	4.6	100	3.2	4.4	3.3
16	240	9.2	220	4.4	110	2.8	4.2	3.4
17	220	9.0	---	---	110	2.4	3.4	3.4
18	220	8.1			---	---	3.2	3.5
19	220	6.7					2.8	3.4
20	230	5.4					2.6	3.3
21	260	4.6						3.0
22	270	4.8						3.1
23	250	4.9						3.1

Time: 60.0°W.
Sweep: 1.2 Mc to 19.5 Mc, manual operation.

Table 12

Huancayo, Peru (12.0°S, 75.3°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	---					3.7	---
01	300	(7.0)					3.6	(3.2)
02	270	(5.3)					3.4	(3.2)
03	250	5.1					3.6	3.2
04	240	4.0					3.5	3.3
05	270	(3.8)					3.8	2.9
06	250	7.2			110	2.2	5.5	3.1
07	270	9.3	230	---	110	2.8	8.1	3.1
08	290	10.3	220	4.8	110	3.2	10.9	2.9
09	300	11.0	220	4.8	110	---	12.3	2.6
10	310	11.0	210	4.8	110	---	12.3	2.5
11	320	10.6	210	4.9	110	---	12.4	2.5
12	320	10.4	210	4.9	110	---	12.5	2.5
13	320	10.7	210	4.8	110	---	12.1	2.5
14	310	10.9	210	4.7	110	---	12.1	2.5
15	300	11.2	210	4.5	110	3.2	11.4	2.5
16	220	11.6	220	---	110	2.8	11.3	2.5
17	250	11.0			110	2.3	7.9	2.4
18	280	10.8			110	1.3	3.2	2.5
19	300	10.1						2.5
20	310	9.4					2.2	2.5
21	310	8.4					3.2	(2.5)
22	320	(7.7)					3.2	(2.6)
23	330	8.2					3.5	(2.8)

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 13

Kiruna, Sweden (67.8°N, 20.5°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(330)	(3.2)					4.0	
01	(300)	(4.0)					3.4	
02	(300)	3.6					4.0	
03	300	(3.8)					3.2	
04	290	3.6					2.7	
05	275	3.4					2.4	
06	255	3.6						
07	255	4.4						
08	250	5.3			---	---		
09	245	5.8	---	---	120	2.4		
10	240	6.2	240	---	115	2.6		
11	245	6.8	230	---	115	2.8		
12	240	7.0	---	---	120	2.7		
13	240	6.8	---	---	110	2.7		
14	235	6.7	---	---	---	---		
15	235	6.2	---	---	---	2.2		
16	235	5.9			---	---		
17	230	(5.4)					2.9	
18	240	4.9					3.7	
19	(255)	(4.2)					3.8	
20	(265)	(3.4)					3.4	
21	---	(3.4)					4.2	
22	---	(3.8)					4.4	
23	(335)	(3.9)					4.3	

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 30 seconds.

Table 14

De Bilt, Holland (52.1°N, 5.2°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(2.9)					2.6	2.9
01	300	(2.8)					2.9	2.8
02	300	(2.6)					2.9	2.9
03	300	(2.3)					2.9	2.9
04	300	(2.0)					3.0	(2.9)
05	300	(2.3)					3.0	3.0
06	260	3.5	255	---	---	1.6	3.0	3.1
07	240	4.7	215	3.3	110	2.0	3.0	3.2
08	275	5.4	205	3.8	100	2.4	3.0	3.2
09	285	5.8	205	4.0	100	2.7	3.4	3.3
10	270	6.9	200	4.1	100	2.9	3.1	3.2
11	290	7.2	200	4.4	100	3.0	3.3	3.2
12	270	8.0	200	4.3	100	3.0	3.1	3.3
13	250	7.6	200	4.1	100	3.0	3.0	3.2
14	250	7.2	210	4.0	100	2.8	3.0	3.3
15	240	7.2	210	3.8	100	2.4	3.0	3.4
16	215	6.8	215	3.2	100	2.0	2.9	3.4
17	210	6.2	---	---	---	1.6	2.4	3.3
18	215	5.9			---	---	2.7	3.2
19	220	5.1			---	---	1.9	3.2
20	220	4.0			---	---		3.1
21	290	3.5					2.2	3.0
22	290	3.2					2.4	2.9
23	300	3.0					2.3	2.8

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 7 minutes, automatic operation.

Table 15

Wakkanai, Japan (45.4°N, 141.7°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.0					1.5	2.7
01	310	3.8					1.8	2.7
02	310	3.9					1.3	2.7
03	300	4.1					1.4	2.7
04	300	3.9						2.7
05	290	4.0					1.3	2.7
06	260	5.2	---	---	110	1.5		3.0
07	260	6.8	---	---	110	2.2		3.1
08	270	7.7	250	---	110	2.6		3.1
09	270	8.2	240	---	110	3.9	4.4	3.2
10	270	8.6	240	4.4	110	3.0	3.8	3.1
11	290	8.5	240	---	110	3.0		3.1
12	270	9.0	230	---	110	3 1	3.7	3.1
13	280	8.3	240	---	110	3.0		3.1
14	270	8.6	250	---	110	2.9		3.1
15	260	8.2	240	---	110	2.6		3.2
16	250	7.7	250	---	110	2.1	2.4	3.2
17	250	7.0	---	---	110	1.5	2.0	3.1
18	260	5.6					2.4	3.0
19	280	5.1					2.0	2.9
20	280	4.8					2.2	2.9
21	280	4.2					1.4	2.8
22	300	4.3					1.4	2.7
23	300	4.2					1.4	2.7

Time: 135.0°E.
Sweep: 1.0 Mc to 14.0 Mc in 15 minutes, manual operation.

Table 16

Akita, Japan (39.7°N, 140.1°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.1					2.4	2.8
01	290	4.0					2.0	2.8
02	290	4.2					2.1	2.8
03	280	3.9					2.2	2.9
04	270	3.7					1.9	3.0
05	280	3.6					2.0	2.9
06	230	5.2	---	---	110	1.6	2.3	3.2
07	230	7.1	220	---	110	2.2		3.5
08	230	8.5	220	---	110	2.6	3.4	3.4
09	230	8.6	220	---	110	2.9	3.6	3.4
10	250	8.9	210	---	110	2.9	3.4	3.3
11	260	9.4	220	---	110	3.0	3.6	3.3
12	250	9.1	220	---	110	3.2		3.2
13	260	8.8	230	---	110	3.0		3.2
14	250	8.8	220	---	110	3.0		3.2
15	250	9.2	230	---	110	2.8		3.3
16	240	8.4	230	---	110	2.3		3.4
17	220	7.4	---	---	110	1.6	2.9	3.3
18	220	5.5					3.2	3.2
19	260	5.0					3.0	3.0
20	260	4.8					3.0	3.0
21	270	4.6					2.9	3.0
22	280	4.5					2.6	2.9
23	280	4.3					2.3	2.9

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 17

Tokyo, Japan (35.7°N, 139.5°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.1					2.8	2.8
01	290	4.1					2.5	2.9
02	270	3.9					2.7	2.9
03	270	4.0					2.5	3.0
04	250	3.7					2.4	3.0
05	260	3.5					2.4	3.0
06	330	5.6	---	---	110	1.4	2.4	3.4
07	220	7.5	---	---	110	2.4	3.0	3.5
08	230	8.4	220	---	100	2.7	3.6	3.4
09	230	9.0	210	---	100	3.0	4.2	3.4
10	240	9.6	210	---	100	3.2	4.2	3.3
11	250	10.2	210	---	100	3.2	3.9	3.3
12	250	10.2	220	4.8	100	3.5	4.1	3.2
13	250	9.8	230	---	100	3.1	4.1	3.2
14	250	9.6	230	---	100	3.2	3.5	3.3
15	240	9.8	230	---	100	2.7	3.4	3.4
16	230	8.6	---	---	100	2.4	3.2	3.4
17	220	7.5	---	---	110	1.7	2.8	3.3
18	220	6.3					3.0	3.3
19	230	5.1					2.8	3.1
20	250	4.7					3.1	3.0
21	260	4.6					2.8	3.0
22	270	4.6					2.6	3.0
23	270	4.2					2.5	2.9

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 18

Yamagawa, Japan (31.2°N, 130.6°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.4					2.8	2.8
01	290	4.1					2.5	2.9
02	280	4.0					2.2	2.9
03	280	4.0					2.4	3.0
04	250	3.8					2.2	3.1
05	280	3.3					2.4	3.0
06	270	3.8			---	E	2.2	3.0
07	230	6.9	230	---	110	2.0	3.0	3.4
08	240	8.1	230	---	110	2.6	3.7	3.4
09	250	9.0	230	---	110	3.0	4.0	3.3
10	260	9.4	220	---	110	3.2	4.2	3.2
11	270	10.4	220	---	110	3.4	4.8	3.2
12	280	10.7	220	---	110	---	4.8	3.1
13	280	11.2	220	4.7	110	3.4	4.3	3.1
14	290	11.5	240	---	110	3.3	4.1	3.1
15	270	11.5	240	---	110	3.2	4.2	3.2
16	250	11.0	240	---	110	2.8	3.8	3.2
17	250	9.6	240	---	110	2.2	3.4	3.3
18	240	8.6	---	---	100	1.6	3.4	3.4
19	230	7.0					3.2	3.3
20	260	5.6					3.2	3.1
21	280	5.4					3.2	3.0
22	270	4.8					2.4	3.0
23	270	4.3					3.0	3.0

Time: 135.0°E.
Sweep: 1.2 Mc to 18.5 Mc in 15 minutes, manual operation.

Table 19

Formosa, China (25.0°N, 121.0°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07								
08	240	9.4	200	4.8	100	3.1	4.1	3.8
09	240	9.8	200	4.9	100	3.2	4.5	3.6
10	240	11.7	200	4.9	100	3.2	4.6	3.5
11	240	12.5	200	5.0	100	3.5	4.8	3.5
12	250	13.8	200	5.2	100	3.4	5.2	3.4
13	260	14.3	200	5.3	100	3.3	4.8	3.5
14	250	14.4	200	5.1	100	3.4	4.3	3.5
15	240	14.3	200	4.6	100	3.4	4.4	3.6
16	220	14.4	200	4.6	100	3.4	4.2	3.7
17	200	14.4			---	---	4.3	3.7
18	200	13.8			---	---	4.6	3.7
19	200	13.0					3.8	3.6
20								
21								
22								
23								

Time: 120.0°E.
Sweep: 2.5 Mc to 14.5 Mc in 15 minutes.

Table 20

Guam I. (13.6°N, 144.9°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	(8.3)					1.8	(3.2)
01	230	8.0						(3.3)
02	230	(7.0)						(3.4)
03	220	(5.0)						(3.2)
04	230	(4.7)					2.5	3.4
05	240	(3.2)					3.7	(3.2)
06	250	(3.6)			---	---	4.0	(2.9)
07	240	7.3	---	---	110	---	4.0	3.3
08	(260)	9.2	230	---	110	2.7	4.1	3.2
09	280	10.7	220	---	110	3.0	4.0	2.9
10	290	11.3	210	---	110	3.2	4.2	2.6
11	290	10.9	200	---	(110)	(3.4)	4.4	2.5
12	300	10.6	200	---	110	(3.4)	4.0	2.4
13	300	10.8	200	---	(110)	3.4	4.2	2.6
14	300	11.6	210	---	110	(3.3)	5.0	2.7
15	290	12.1	210	---	110	(3.2)	4.6	2.8
16	270	12.8	230	---	110	---	6.2	3.0
17	250	(13.0)	---	---	---	---	4.5	(3.0)
18	260	(12.8)					4.0	(3.0)
19	280	(12.6)					1.8	(2.8)
20	260	(12.5)					2.4	(2.8)
21	230	(10.6)					3.0	(2.9)
22	240	(9.7)					3.1	(3.0)
23	240	(9.9)					2.5	(3.1)

Time: 150.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 21

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.3						2.9
01	(270)	4.1						3.0
02	250	4.0						3.1
03	(250)	3.6						2.9
04	(270)	3.4					1.8	2.9
05	(260)	3.5						2.9
06	240	5.5			---	(2.0)		3.3
07	250	7.0	230	---	110	(2.6)		3.3
08	260	8.1	220	4.4	110	(3.0)		3.2
09	280	8.3	220	4.6	110	(3.3)	3.5	3.1
10	290	8.7	210	4.9	110	(3.5)		3.0
11	300	9.4	210	5.0	110	(3.6)		2.9
12	300	9.8	210	4.9	110	(3.6)	3.8	2.9
13	300	10.0	210	4.9	110	(3.6)	4.0	2.9
14	300	10.4	220	4.8	110	(3.5)	4.0	2.9
15	280	10.2	220	4.6	110	(3.3)	3.8	2.9
16	270	10.1	230	---	110	(3.0)	3.5	3.0
17	260	10.1	230	---	110	(2.5)	3.0	3.1
18	240	9.6			---	1.8	2.0	3.2
19	220	8.2					1.9	3.1
20	230	6.9					1.9	3.1
21	240	6.0					2.0	3.1
22	250	4.9					1.6	3.0
23	260	4.6						2.9

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 22

Capetown, Union of S. Africa (34.2°S, 16.3°E) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	3.8						2.8
01	(280)	3.6						2.8
02	280	3.6						2.9
03	270	3.6						2.8
04	(260)	3.4						2.7
05	(270)	3.5						2.8
06	270	4.2			---	(1.6)		2.9
07	240	6.3	240	---	120	2.2		3.2
08	260	7.2	230	---	110	2.7		3.1
09	280	7.9	220	4.4	110	(3.1)	3.0	3.0
10	300	8.4	220	4.6	110	(3.3)		2.9
11	310	9.0	220	4.8	110	---		2.9
12	310	9.1	220	5.0	110	---		2.8
13	310	9.9	220	5.0	110	---		2.8
14	300	10.1	220	4.9	110	3.6	3.2	2.8
15	300	10.1	220	4.7	110	3.4	3.5	2.9
16	280	9.8	230	4.3	110	(3.1)	3.4	3.0
17	270	9.7	240	---	120	2.8	3.1	3.0
18	250	9.0	250	---	120	(2.2)	2.6	3.1
19	230	8.0			---	---	1.8	3.2
20	220	7.3					1.8	3.1
21	240	5.9						3.0
22	250	5.0					1.6	2.9
23	(250)	3.9						2.9

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 23

Brisbane, Australia (27.5°S, 153.0°E) August 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.1						2.8
01	260	4.0						2.9
02	250	4.1					2.0	3.0
03	245	4.2						3.1
04	240	3.8					2.2	3.0
05	250	3.5					2.1	2.9
06	260	3.8					2.2	3.0
07	240	6.5			140	2.3		3.4
08	240	7.5	230	4.0	110	2.7		3.3
09	250	8.5	230	4.5	105	3.1		3.4
10	260	8.5	220	4.8	105	3.3		3.3
11	250	8.5	220	4.8	105	3.4		3.3
12	260	8.0	210	4.8	100	3.5		3.2
13	260	7.8	200	4.8	100	3.4	3.8	3.2
14	250	8.0	200	4.5	105	3.3		3.2
15	250	8.0	210	4.2	105	3.1		3.2
16	240	7.6	220	3.8	110	2.7	2.9	3.2
17	230	7.4			150	2.2	2.5	3.2
18	220	6.4					3.1	3.2
19	230	5.7						3.1
20	250	4.9						3.0
21	265	4.6						2.9
22	270	4.6						2.9
23	260	4.2						2.9

Time: 160.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 24

Canberra, Australia (35.3°S, 149.0°E) August 1960

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	(3.7)					2.7	(3.0)
01	250	(3.7)					3.0	(3.0)
02	260	3.7					2.9	3.0
03	250	(3.6)					2.8	(3.0)
04	240	(3.6)					2.7	3.1
05	240	3.3					2.8	3.1
06	250	(3.2)			---	E	2.8	3.0
07	240	5.1			110	1.7	2.8	3.3
08	230	6.7	---	---	110	2.5	3.0	3.4
09	250	7.1	220	(3.9)	100	2.9	3.0	3.4
10	250	7.8	210	4.4	100	3.1		3.4
11	260	8.0	210	4.4	100	3.3		3.3
12	260	8.0	210	4.5	100	3.3		3.2
13	260	8.2	200	4.4	100	3.3		3.3
14	250	8.2	200	4.4	100	3.2		3.3
15	240	8.0	200	(3.8)	100	3.0	3.1	3.3
16	230	7.5	210	(3.4)	100	2.6	3.0	3.3
17	230	7.1	---	---	(110)	2.0	3.0	3.3
18	220	6.5			---	(<1.1)	1.4	3.2
19	220	5.7						3.2
20	240	5.0						3.1
21	240	(4.5)						3.0
22	240	(4.1)					2.6	(3.0)
23	250	(3.7)					2.6	(3.0)

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 25

Hobart, Tasmania (42.8°S, 147.4°E) August 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.6						3.0
01	260	2.5					3.0	3.0
02	270	2.4					2.5	3.0
03	260	2.0						3.0
04	250	2.0					1.5	3.1
05	240	1.9						3.1
06	250	1.9						3.0
07	240	3.5	---	---	---	E		3.3
08	230	5.0	230	3.0	100	2.0		3.5
09	230	5.7	200	3.5	100	2.6		3.4
10	250	6.5	200	4.1	100	3.0		3.4
11	250	7.0	200	4.2	100	3.1		3.4
12	260	7.5	200	4.2	100	3.1		3.4
13	250	7.7	200	4.2	100	3.1		3.4
14	250	7.8	200	4.2	100	2.9		3.4
15	240	7.3	200	3.9	100	2.6		3.4
16	230	7.6	210	3.2	100	2.3		3.5
17	210	7.0	200	2.3	110	1.8		3.3
18	200	6.0			---	E		3.2
19	200	5.0						3.3
20	220	4.5						3.3
21	240	3.9						3.1
22	240	3.3						3.1
23	250	3.0						3.0

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 26*

Guam I. (13.6°N, 144.9°E) January 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	(8.8)					3.3	(3.0)
01	230	(8.6)						(3.2)
02	230	(7.8)						(3.2)
03	210	5.7						3.2
04	230	(4.4)						(3.0)
05	240	(3.9)					1.8	(2.9)
06	230	3.4					2.0	3.1
07	260	(6.4)			130	1.8	3.2	3.1
08	240	(9.6)	---	---	110	2.8	5.4	(3.1)
09	(250)	(11.9)	220	---	110	3.3	5.6	(2.8)
10	270	(12.0)	210	---	110	(3.5)	5.3	(2.6)
11	270	10.7	200	5.0	100	3.8	5.5	2.4
12	290	(10.5)	200	5.1	110	3.8	5.4	(2.4)
13	(290)	(10.8)	200	---	110	3.8	5.0	(2.4)
14	---	(11.4)	200	---	110	3.8	4.5	2.4
15	(240)	12.3	220	---	110	3.6	4.6	2.5
16	240	(13.0)	230	---	110	3.2	4.8	(2.7)
17	250	(13.2)			110	2.7	4.0	2.8
18	270	(13.4)			---	---	3.9	(2.7)
19	270	(12.9)					3.1	(2.7)
20	260	(12.1)					2.7	(2.7)
21	250	(11.3)					2.7	(2.9)
22	240	(10.5)					3.6	(3.0)
23	230	(9.5)					2.6	(3.0)

Time: 150.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconde.
*Supersedes Table 10, CRPL-F67.

Table 27*

Campbell I. (52.5°S, 169.2°E) October 1949

Time	h'F2	foF2	h'F1	foF1	h'F	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	270	5.3			120	2.0		(2.9)
06								
07	260	6.6	260	4.4	110	2.8		2.9
08	300	7.2	240	4.6	110	3.0		2.8
09	350	7.4	230	5.0	110	3.3		2.8
10	360	7.9	230	5.2	110	3.4		2.7
11	340	8.2	240	5.2	110	3.5		2.7
12	350	8.4	230	5.4	110	3.5		2.7
13	350	8.6	240	5.5	110	3.5		2.7
14	340	9.0	240	5.2	110	3.3		2.7
15	300	8.9	240	4.7	110	3.2		2.7
16	280	8.8	250	4.5	110	2.9		2.7
17	260	9.2	260	3.9	120	2.5		2.7
18	270	9.3			---	2.0	2.3	2.7
19	260	8.8					1.8	2.7
20								
21	300	(7.4)					2.6	(2.6)
22								
23	310	---					4.0	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 28*

Campbell I. (52.5°S, 169.2°E) September 1949

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	(270)	5.1						(2.8)
06								
07	250	6.6			120	2.4		3.0
08	250	7.6	250	4.4	110	2.8		3.0
09	260	8.4	240	4.6	110	3.0		3.0
10	270	8.9	230	4.9	110	3.2		2.9
11	290	9.2	230	4.9	110	3.4		2.9
12	290	9.7	230	4.9	110	3.4		2.9
13	270	9.5	230	4.6	110	3.3		2.8
14	260	9.6	240	4.4	110	3.2		2.9
15	250	9.6	230	4.0	110	3.0		2.8
16	250	9.8	---	---	120	2.6		2.9
17	250	9.5			120	2.0		2.9
18	240	8.8			---	---		2.8
19	250	8.4						(2.8)
20								
21	250	7.0					1.7	(2.8)
22								
23	280	6.8					3.0	(2.7)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 29*

Campbell I. (52.5°S, 169.2°E) August 1949

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	(3.1)					1.7	(2.8)
06								
07	250	5.0			---	1.8	1.9	3.2
08	240	6.2			120	2.2		3.3
09	240	7.2	---		110	2.6	2.0	3.2
10	240	8.0	220	4.0	110	2.8	1.9	3.2
11	260	8.3	240	4.0	120	3.0		3.1
12	250	8.5	220	4.0	120	3.0		3.1
13	250	8.8	230	4.0	120	3.0		3.1
14	250	8.4	220	3.5	110	3.0		3.1
15	250	8.6	220	3.3	120	2.6		3.1
16	240	7.8	---	---	120	2.1		3.1
17	230	7.4			---	1.6	1.7	3.0
18	240	7.0						2.9
19	250	6.2						(2.8)
20								
21	(260)	5.0					1.9	
22								
23	270	(5.0)					2.2	

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 30*

Campbell I. (52.5°S, 169.2°E) July 1949

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	3.0						
06								
07	250	(3.1)			---	---		
08	230	5.5			---	1.7	2.3	3.3
09	220	7.2			110	2.2	2.6	3.4
10	230	8.1	---	---	110	2.5	3.7	3.3
11	230	8.7	---	---	110	2.7	3.6	3.2
12	240	9.2	220	---	110	2.8	3.0	3.2
13	240	8.9	220	3.5	110	2.8	3.0	3.2
14	240	8.9	---	---	110	2.5	2.6	3.2
15	230	8.8			120	2.2	2.4	3.2
16	220	7.9			---	1.6	2.1	3.2
17	230	6.8					1.7	3.0
18	230	5.8					1.9	3.0
19	240	4.8						3.0
20								
21	280	3.5						(2.7)
22								
23	300	(3.3)						

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 31*

Campbell I. (52.5°S, 169.2°E) December 1948

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	5.8			110	2.4	3.9	2.9
06								
07	250	6.4	220	4.7	100	3.1	4.0	2.8
08	330	7.0	220	5.0	100	3.4	4.0	2.8
09	350	7.4	220	5.2	100	3.4	3.8	2.8
10	380	7.5	220	5.3	100	3.5	4.0	2.8
11	350	7.6	210	5.3	100	3.5	4.0	2.8
12	400	7.8	220	5.5	100	3.6	4.0	2.7
13	390	7.6	220	5.4	100	3.6	3.8	2.7
14	370	7.9	220	5.4	100	3.6	3.9	2.7
15	380	7.8	220	5.4	100	3.5	3.5	2.7
16	340	8.0	230	5.0	100	3.3	3.0	2.6
17	310	8.3	240	4.6	110	3.0	3.7	2.7
18	250	8.4	250	---	110	2.6	4.1	2.7
19	260	8.3			120	2.0	3.3	2.7
20								
21	270	---					2.2	---
22								
23	290	---					3.7	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 32*

Campbell I. (52.5°S, 169.2°E) November 1948

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	5.6	---	---	110	2.3	2.8	2.9
06								
07	250	6.7	230	4.6	110	3.0	3.8	2.9
08	300	6.8	220	6.0	110	3.2	3.9	2.8
09	350	7.6	220	5.2	110	3.4	4.0	2.7
10	350	7.5	210	5.2	110	3.5	4.0	2.7
11	370	7.9	220	5.4	110	3.6	4.0	2.7
12	400	8.0	220	5.4	110	3.5	3.9	2.6
13	360	7.9	210	6.4	110	3.5	3.8	2.7
14	370	8.2	220	6.4	110	3.4	3.9	2.7
16	340	8.0	220	5.1	110	3.2	3.6	2.7
16	340	8.5	240	4.9	110	3.1	3.6	2.7
17	250	8.6	240	---	110	2.7	3.6	2.7
18	260	8.8	---	---	120	2.3	2.7	2.7
19	270	8.8			---	---	2.2	2.7
20								
21	(280)	---					3.2	---
22								
23	(300)	---					3.4	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 33*

Campbell I. (52.5°S, 169.2°E) October 1948

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	270	4.6			---	1.9	1.8	2.8
06								
07	250	6.0	240	4.3	110	2.7		2.9
08	250	6.3	230	4.6	110	3.0		2.8
09	300	6.8	220	4.8	110	3.2	3.2	2.8
10	350	6.9	220	5.0	110	3.3	3.5	2.8
11	350	7.0	220	5.0	110	3.5	3.6	2.8
12	350	7.6	230	5.0	110	3.5		2.7
13	310	7.8	230	4.9	110	3.4		2.8
14	300	7.8	230	5.0	110	3.4		2.7
15	280	8.1	240	4.8	110	3.2		2.7
16	240	8.2	---	---	110	2.8	1.6	2.7
17	260	8.3	---	---	110	2.4	2.7	2.8
18	260	8.2			---	1.8	2.2	2.8
19	260	(8.0)			---	---	2.4	(2.6)
20								
21	(260)	(7.1)					3.7	---
22								
23	---	(5.6)					3.6	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 34*

Campbell I. (52.5°S, 169.2°E) September 1948

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	(270)	(3.9)						---
06								
07	250	6.8	---	---	120	2.5	2.2	3.1
08	240	6.6	230	---	120	2.8	2.6	3.1
09	260	7.4	220	4.4	110	3.1	3.0	3.0
10	280	8.1	230	4.5	110	3.3	2.4	3.0
11	280	8.5	230	4.6	110	3.3	3.4	2.9
12	270	8.7	220	4.6	110	3.3		2.9
13	260	9.0	220	4.6	110	3.3		2.9
14	250	9.0	230	4.1	110	3.2		2.9
15	240	9.0	230	3.8	110	3.0		2.9
16	250	9.0	230	3.2	120	2.5	2.7	2.9
17	250	8.4			---	2.0		2.9
18	240	8.2			---	---		2.8
19	250	7.2						2.8
20								
21	270	7.0						(2.7)
22								
23	(270)	(5.4)					3.5	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 35*

Campbell I. (52.5°S, 169.2°E) August 1948

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	(270)	(3.1)					2.4	---
06								
07	250	5.2			---	1.9	2.6	3.2
08	230	6.8			120	2.3	3.0	3.2
09	240	8.1	240	---	120	2.7	3.1	3.1
10	240	9.0	220	4.1	110	3.0	3.5	3.1
11	250	9.5	220	4.2	110	3.0	3.8	3.1
12	250	9.4	230	4.4	120	3.1	3.5	3.1
13	250	9.9	220	4.2	120	3.0	3.3	3.0
14	250	9.7	230	3.9	120	2.9	3.4	3.1
15	240	9.9	---	---	120	2.6	3.1	3.1
16	230	9.0			120	2.2	3.4	3.1
17	230	8.4			---	1.7	2.0	3.1
18	230	7.8						3.0
19	250	6.7						3.0
20								
21	(260)	5.4					3.0	(2.8)
22								
23	---	5.0					3.8	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 36*

Campbell I. (62.5°S, 169.2°E) July 1948

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	3.4					2.2	(2.8)
06								
07	270	3.6					2.3	(3.0)
08	230	6.4			---	1.8	2.6	3.3
09	220	8.4			120	2.2	3.1	3.2
10	230	9.9	---	---	120	2.5	3.7	3.2
11	230	10.6	---	---	120	2.7	3.6	3.2
12	230	11.2	230	---	120	2.8	3.8	3.2
13	230	11.2	220	---	120	2.7	3.1	3.1
14	230	10.9	---	---	120	2.6	3.0	3.1
15	220	10.4			120	2.2	2.6	3.1
16	220	9.5			---	(1.8)	2.3	3.1
17	220	9.0						3.0
18	230	7.1						3.0
19	240	6.0					2.2	3.0
20								
21	(260)	5.0					3.0	(2.8)
22								
23	---	---					3.5	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 37*

Campbell I. (52.5°S, 169.2°E) December 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	6.1	---	---	110	2.5	3.1	2.7
06								
07	320	6.9	250	5.0	100	3.3	4.1	2.7
08	350	6.9	240	5.3	100	3.5	4.2	2.7
09	380	6.9	230	5.4	100	3.7	4.2	2.7
10	430	7.4	230	5.5	100	3.8	4.3	2.7
11	420	7.5	220	5.7	100	3.8	4.1	2.7
12	420	7.9	230	5.8	100	3.8	4.2	2.6
13	430	7.7	230	5.7	100	3.8	3.9	2.6
14	410	7.9	230	5.6	100	3.7	4.1	2.6
15	400	7.9	230	6.6	100	3.6		2.6
16	400	8.1	240	5.3	100	3.4		2.5
17	350	8.2	250	6.1	110	3.1	3.5	2.6
18	250	8.5	---	---	110	2.7	3.4	2.6
19	260	8.5			120	2.2	3.0	2.6
20								
21	300	8.5			---	---	3.1	2.4
22								
23	300	(7.8)					3.4	(2.5)

Time: 166.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 38*

Campbell I. (52.5°S, 169.2°E) November 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	6.3			120	2.6		2.7
06								
07	300	6.9	250	4.8	110	3.2		2.7
08	360	7.2	240	5.4	110	3.4		2.7
09	380	7.6	240	5.6	100	3.6		2.7
10	420	8.0	230	5.9	100	3.8		2.6
11	440	8.2	230	5.8	100	3.8		2.6
12	430	8.2	230	6.0	100	3.8		2.6
13	430	8.3	230	5.8	100	3.8		2.5
14	430	8.3	230	5.7	110	3.6		2.5
15	400	8.2	240	5.6	110	3.5		2.6
16	300	8.5	240	5.4	110	3.2		2.6
17	260	8.7	250	4.9	110	3.0		2.6
18	270	8.8	---	---	120	2.6	2.9	2.6
19	290	8.9			140	2.0	2.3	2.5
20								
21	300	(8.4)						2.5
22								
23	320	(7.3)					3.2	(2.4)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 39*

Campbell I. (52.5°S, 169.2°E) October 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	290	6.1			160	2.2		2.6
06								
07	250	7.3	250	4.4	110	2.9		2.7
08	290	8.0	240	4.9	110	3.2		2.7
09	340	8.6	240	5.2	110	3.5		2.6
10	400	9.0	240	6.0	110	3.7		2.6
11	400	9.0	230	6.0	110	3.7		2.6
12	400	9.3	240	5.8	110	(3.7)		2.5
13	410	9.4	240	5.9	110	3.6		2.5
14	390	9.7	240	5.6	110	3.6		2.5
15	370	9.5	240	5.4	110	3.3		2.5
16	300	9.6	250	4.9	110	3.0		2.5
17	300	9.6	260	4.2	120	2.8		2.5
18	280	9.7			140	(2.1)	2.5	2.6
19	280	9.7			---	E	2.9	2.5
20								
21	350	8.3					2.9	(2.3)
22								
23	350	(7.0)					3.2	(2.3)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 40*

Campbell I. (52.5°S, 169.2°E) September 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	330	(4.4)			---	---		(2.4)
06								
07	260	6.1	---	---	120	2.4		2.9
08	300	6.8	250	4.1	120	2.8		2.8
09	290	7.3	240	4.5	120	3.0		2.8
10	300	7.8	240	5.0	110	3.2		2.8
11	300	8.6	240	5.0	110	3.3		2.7
12	300	9.1	240	5.0	110	(3.3)		2.7
13	300	9.5	240	5.0	110	3.3		2.7
14	290	10.0	240	4.6	110	3.1		2.7
15	280	10.0	240	4.1	120	2.9		2.7
16	260	9.8	250	3.8	120	2.6		2.7
17	260	9.7	---	---	160	2.1	2.8	2.7
18	260	9.6			---	---	2.9	2.7
19	260	9.0					3.0	2.6
20								
21	280	7.6					3.3	(2.6)
22								
23	300	(6.6)					3.9	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 41*

Campbell I. (52.5°S, 169.2°E) August 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
06	280	(4.4)					2.9	(2.5)
06								
07	260	6.4	---	---	---	1.7	2.9	2.8
08	260	6.8	250	3.6	120	2.4	2.8	3.0
09	260	8.2	250	4.0	120	2.8	2.8	3.0
10	260	9.2	240	4.2	120	3.0		2.9
11	250	10.2	240	4.4	120	3.1		3.0
12	260	10.8	240	4.5	120	3.1		2.9
13	260	11.0	240	4.3	120	3.0		2.9
14	260	10.2	240	4.1	120	3.0		2.9
16	250	10.3	240	3.8	120	2.7		2.9
16	250	10.1	---	---	130	2.3	2.1	2.9
17	240	9.8	---	---	---	E	2.9	2.9
18	250	8.4					3.0	2.8
19	250	7.9					2.6	2.8
20								
21	260	(7.0)					3.0	(2.6)
22								
23	310	---					3.9	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
* Observations taken on a 16-hour working schedule.

Table 42*

Campbell I. (52.5°S, 169.2°E) July 1947

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	(4.2)					3.0	(2.6)
06								
07	250	(4.0)					2.9	(2.7)
08	240	6.8			---	1.8	3.0	3.1
09	240	9.0	---	---	120	2.3	2.9	3.2
10	240	10.2	---	---	120	2.7		3.2
11	240	11.4	220	4.6	120	2.9		3.1
12	240	11.7	230	4.4	120	2.9	2.9	3.0
13	240	11.5	---	---	120	2.8	2.9	3.1
14	240	11.7	---	---	120	2.7	2.9	3.1
15	240	11.4			120	2.3	2.9	3.1
16	230	10.0			---	1.7	2.9	3.1
17	230	8.3			---	---		3.0
18	230	7.6						2.8
19	250	6.4						(2.9)
20								
21	270	---					2.9	---
22								
23	300	---					3.2	---

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
* Observations taken on a 16-hour working schedule.

Table 43*

Campbell I. (52.5°S, 169.2°E) December 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	240	4.9	---	---	115	2.2	2.8	3.0
06								
07	310	5.8	230	4.3	116	2.8	3.2	2.9
08	350	5.8	225	4.5	115	3.0	3.3	2.9
09	340	6.1	220	4.7	110	3.1	3.5	2.9
10	350	6.2	215	4.8	115	3.2	3.6	2.8
11	330	6.3	210	4.8	116	3.2	3.6	2.9
12	350	6.3	210	4.8	115	3.2	3.2	2.8
13	340	6.4	210	4.7	115	3.3		2.9
14	345	6.4	215	4.6	115	3.2		2.8
15	345	6.2	225	4.6	115	3.0		2.8
16	330	6.4	225	4.4	120	2.9	2.9	2.9
17	310	6.7	240	4.0	120	2.6	3.0	2.8
18	280	7.0	245	3.6	125	2.3	3.0	2.8
19	250	7.3	---	---	---	2.0	3.0	2.8
20								
21	260	7.2					3.0	2.7
22								
23	275	(6.8)					3.5	(2.7)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 44 * (Supersedes Table 28, IRPL-F14)

Campbell I. (52.5°S, 169.2°E) August 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	---	(2.5)					2.4	(3.6)
06								
07	240	3.6					1.8	3.2
08	230	4.4	---	---	105	2.1	2.3	3.6
09	240	4.8	200	3.4	106	2.4	2.4	3.5
10	250	5.6	205	3.8	105	2.6	3.0	3.4
11	250	6.6	200	3.9	106	2.8	3.0	3.3
12	260	6.8	210	3.9	106	2.8		3.3
13	250	6.9	205	3.8	110	2.6		3.4
14	245	6.7	200	3.6	105	2.6	2.6	3.4
15	240	5.6	216	3.3	105	2.2	2.3	3.4
16	230	6.5	---	---	110	2.0	1.8	3.4
17	220	6.1						3.2
18	230	4.3						3.1
19	240	3.8						3.0
20								
21	260	2.7						2.8
22								
23	300	2.5						2.7

Time: 166.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

Table 45* (Supersedes Table 21, IRPL-F13)

Campbell I. (52.5°S, 169.2°E) July 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
06	(370)	(2.2)					3.0	---
06								
07	335	(2.5)					3.0	(2.7)
08	240	3.8					2.4	3.2
09	230	4.8			150	2.2	3.0	3.2
10	240	5.3	220	3.3	130	2.4	3.0	3.2
11	255	5.9	225	3.7	130	2.5	3.3	3.2
12	245	6.0	220	3.6	125	2.4	3.3	3.3
13	245	5.7	225	3.4	130	2.4	3.0	3.3
14	236	5.9	225	3.2	130	2.3	2.6	3.2
15	235	5.7			---	---	2.5	3.2
16	230	4.7						3.1
17	245	4.2						3.0
18	260	3.9						2.9
19	270	3.0						2.7
20								
21	335	(2.7)					3.0	(2.6)
22								
23	400	(2.5)					3.1	(2.5)

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc, manual operation.
*Observations taken on a 16-hour working schedule.

TABLE 46

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), December (Month), 1950

Observed at Washington, D.C.

Lat 38.7°N, Lang. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: B.E.B., By.H., McC.

Calculated by: By H., B.E.B., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	S	(300)S	300	300	250	250	230	220	240	230	250	240	230	270	230	230	210	230	250	240	(270)S	[280]S	(300)S
2	[300]A	310	300	270	250	220	(270)S	250	220	230	230	260	250	260	260	240	220	210	230	230	230	(290)S	(290)S	(300)S
3	300	310	280	270	240	230	230	240	220	230	200H	220	200H	230H	260	250	230	220	220	230	260	250	(280)S	(310)S
4	300	300	270	240	240	230	(270)S	240	230	230	260	240	270	260	260	250	240	210	230	230	[260]A	(300)A	(300)A	(300)A
5	(300)S	(280)S	280	260	250	(250)S	(280)S	240	230	230	210	M	M	270	260	250	230	220	220	230	(230)S	(300)S	[300]S	(300)S
6	300	300	300	290	280	270	[280]S	300	260	250	260	250	270	270	270	240	230	220	230	230	(260)S	(260)S	S	S
7	300	300	(300)A	(270)A	230	240	280	260	220	250	230	240	230	220H	230	240	280	210	220	220	230	260	290	300
8	(300)S	(310)S	(310)S	290	260	210	(230)S	240	230	230	260	270	240	270	260	240	230	210	220	230	240	280	S	S
9	(300)S	280	300	300	270	260	(270)S	250	230	230	240	260	[260]C	270	250	240	220	220	220	230	260	[280]A	300	300
10	290	[300]A	300	290	270	270	270	230	230	220	210	250	250	270	250	230	230	230	220	240	270	(270)S	[270]S	(300)S
11	(290)S	290	270	280	270	260	240	250	220	M	M	M	M	230	250	240	230	210	230	240	260	(290)S	(300)S	(300)S
12	[290]B	(280)S	(290)S	280	230	260	(280)S	270	230	220	230	250	250	250	250K	260K	230K	230K	220K	220K	(260)SK	290K	290K	300K
13	240K	290K	260K	230K	220K	S K	S K	270	230	280	200H	260	200H	270	270	230	250	220	210	210	260	300	[320]S	(330)S
14	290	(280)S	260	230	240H	S	S	270	210	220H	240	240	240	260	240	270	220	240	230	200	(260)S	A	A	S
15	(310)S	(310)S	290	270	230	(230)S	[260]S	(290)S	220	210	220	240	260	230	[230]L	230	230	210	210	230	220	(260)S	(290)S	(280)S
16	300	(300)S	(360)S	230	250	(260)S	(270)S	(270)S	230	230	220	230	230	250	220	220	230	220	230	230	(230)S	(290)S	S	S
17	S	(300)S	(300)S	280	270	[280]A	(300)S	270	230	220	220	250	250	250	260	(230)A	230	(240)A	220	(260)S	(270)S	(280)S	300	(300)S
18	(300)S	(280)S	(310)A	300	220	270	(270)A	250	230	220	230	260	260	250	(240)A	(270)A	230	220	240	240	(240)S	(300)S	(300)S	(300)S
19	300	(290)S	290	290	290	280	280	240	230	230	240	240	[240]L	230	240	220	220	220	220	240	(270)A	[280]A	(300)S	280
20	(280)S	280	260	270	280	260	(270)S	250	220	210	240	240	[240]A	240	[240]L	240	(240)S	210	(230)S	(260)S	220	(300)S	(300)S	(300)S
21	300	300K	300K	300K	290K	260K	240K	210K	220K	220K	(230)KA	230K	250K	240K	220K	[220]LK	210K	A K	A K	A K	270K	A K	S K	A K
22	A K	S K	A K	A K	A	220	[250]S	270	230	250	260	250	270	260	260	270	240	240	230	(260)A	250	260	[240]SK	(220)SK
23	290K	280K	260K	(250)KA	B K	B K	S K	A K	220	230	230	260	270	260	250	250	220	220	230	(240)A	(300)A	(300)A	[310]A	(320)A
24	(300)A	(280)S	(300)S	A	A	240	280	(300)S	220	220	250	250	250	260	250	280	220	230	230	250	(300)S	(300)S	(300)S	(300)S
25	(300)S	(280)S	300	270	270	(290)S	(300)S	(260)S	230	230	250	240	250	240	250	270	230	210	210	220	(250)S	(300)S	(300)S	(310)S
26	(320)S	(300)S	250K	250K	(280)BK	B K	S K	(270)S	230	220	250	240	230	230	250	250	210	220	220	(220)A	S	S	S	S
27	(300)S	300	250	230K	(230)KS	B K	B K	(280)SK	210	240	230	230	250	270	250	240	230	(220)B	220	220	S	S	S	S
28	(320)S	(300)S	(290)S	280	(260)S	S	S	290	220	230	260	240	230	260	240	240	230	220	220	A	S	A	S	A
29	(290)S	(300)S	(300)S	(250)S	[250]A	250	[240]A	(230)S	230	(250)A	240	240	240	250	260	240	230	210	210	230	(280)S	S	S	S
30	(300)S	280	290	270	250	250	(250)S	240	220	230	240	240	240	270	260	240	230	220	230	240	(260)S	S	S	A
31	A	A	A	A	280	240	220	(250)S	220	250	230	250	250	270	250	250	230	220	250	230	(270)S	(300)S	[300]A	300
Median	(300)	(300)	290	270	260	250	(270)	250	230	230	230	240	250	260	250	240	230	220	230	230	(260)	(290)	(300)	(300)
Count	27	28	29	28	28	25	25	30	31	30	30	29	29	31	31	31	31	30	30	29	28	28	21	21

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 47

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

foF2 (Characteristic), Mc (Unit), December (Month), 1950

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: B. E. B., By. H., McC.

Calculated by: By. H., B.E.B., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	[2.2]A	2.2	2.3	2.3F	2.4F	2.9F	2.9F	(4.0)SF	6.2F	(8.0)SF	8.1	10.0V	8.6F	9.2VF	(8.1)F	8.0Z	8.0	6.5	4.7	[4.0]SF	3.4F	2.5F	(2.5)S	(2.6)JS
2	(2.7)SF	2.6F	3.0F	3.4FZ	3.8F	3.4F	2.5F	(3.9)S	(6.5)S	8.0	(7.8)S	(8.8)S	9.0	9.9	10.0	(8.7)S	(8.6)S	6.8	(5.3)S	4.7	3.8F	(2.7)S	(2.6)S	(2.7)S
3	(2.8)S	(3.1)S	3.3F	3.5	3.4	3.0F	2.7F	(4.1)S	(6.7)S	7.8	(7.8)SH	9.0	8.5F	8.0	8.6F	9.1	8.8	7.5	(5.9)S	(4.8)JS	3.5	3.0	(2.5)S	2.5
4	2.7	2.8F	3.1F	3.3	3.0FZ	2.9	(2.7)JF	(4.0)SZ	7.0	7.8	(7.9)S	8.0	8.7	8.8	9.1	8.8	(9.0)S	(7.4)S	(6.2)S	4.3	[3.4]A	3.1	2.9	2.8F
5	(2.8)JS	2.9	3.1	3.2F	3.2	2.9	3.0	4.3	6.5	7.9	7.6	M	M	9.6	9.7	(9.0)S	9.3	8.3	6.8F	(5.1)SF	3.2	(2.8)S	(2.8)JS	2.7
6	2.8	3.0	3.2	3.1	2.7	2.4	(2.1)JS	3.4	6.1	(7.0)SF	7.4	7.3	9.0	9.7	9.9	(9.6)S	9.3	8.2	6.0FZ	5.5	3.3	(2.8)JF	(2.6)JF	(2.7)SF
7	2.9F	3.3F	(3.3)F	[3.5]SF	(3.7)SF	2.9F	(2.7)SF	(4.0)SF	7.0Z	8.0	7.8FZ	9.2	8.8Z	8.7FZ	9.0Z	(9.3)S	9.2	(8.1)S	6.7	4.7F	3.6F	2.7F	2.6F	2.7F
8	2.6F	(2.7)JF	(3.1)SF	3.8F	(4.0)SF	(4.0)SF	2.9F	3.6F	6.3FZ	7.6F	(9.6)S	9.0F	(9.8)S	(9.2)SZ	(9.1)S	(9.9)S	(8.8)S	7.2F	(6.3)SF	(6.0)SF	(4.1)F	3.2F	(2.5)SF	(2.4)SF
9	(2.5)SF	3.1F	3.4F	3.8F	4.2F	3.8F	3.6F	3.6F	7.2F	(8.9)S	(8.1)SZ	(9.8)S	[9.4]C	9.0	(9.2)S	(9.0)S	(8.4)S	(7.6)S	(5.9)SF	4.8F	(4.0)JS	3.4	3.0F	3.4
10	4.1	(3.9)S	3.7F	3.8F	3.7F	3.5F	3.6F	4.1F	6.8	7.6V	(8.2)H	9.2	8.8	9.4	8.9	(8.9)S	(8.5)S	8.0	5.7	(4.2)S	3.5F	2.9F	(2.5)JS	(2.9)SJ
11	(2.7)SF	(2.9)SF	3.4F	(4.0)F	3.5F	3.6F	3.4F	(3.9)SF	(6.0)F	M	M	M	M	8.6	8.7	(8.5)S	8.6	6.8	5.6	4.6FZ	3.5	13.0)B	(2.8)S	(2.7)JS
12	[2.8]B	(2.9)S	(3.1)B	3.4	(3.5)JB	2.7	2.6	3.6F	7.2	7.7F	8.5F	(9.2)S	(9.1)S	9.7	9.0K	10.0K	(10.2)SK	(9.8)SF	K(8.8)SF	K(5.8)SP	K(3.9)SF	K(4.3)HF	F SK	K[5.2]FS
13	K(5.6)SF	K(5.4)SF	K(5.4)SF	K[4.2]SF	3.0FK	2.1FK	K[2.0]SF	3.0F	6.0F	7.8F	(10.2)S	9.5ZF	9.6ZF	10.0F	9.6	(10.5)S	(10.8)S	(10.2)S	(7.6)JS	6.6	(3.9)JV	2.8H	(2.8)H	(3.3)R
14	(4.0)JS	4.1	4.1	3.3	2.5	(2.0)SB	(1.9)JB	3.3	[5.0]N	(7.0)S	(8.9)S	9.0	(8.5)S	9.7	9.1	9.8	(10.0)S	7.3	8.1	(4.5)P	4.6	A	A	2.5F
15	2.4F	2.6F	3.4F	(4.3)SF	4.0	2.8F	2.3	3.2	6.0	8.0	8.0H	9.7	9.1	9.3V	9.0	8.9	(9.3)S	8.0	6.4	5.2F	4.2F	3.3F	3.2F	3.0F
16	3.1	3.3F	3.6F	(3.8)SF	3.3F	2.9F	2.5F	3.1FZ	6.5F	(6.9)SZ	(7.2)SF	7.8FZ	8.6F	8.7F	7.6F	8.0	8.0F	6.7K	(6.1)SF	4.2F	(2.8)JF	2.3F	2.2	2.3F
17	2.2F	2.4F	(2.4)SF	2.4F	2.5F	2.3F	1.7	3.1	6.3	(7.2)S	6.7	8.4	8.2	8.6	9.4	7.7F	7.9F	6.8F	4.7F	3.3	3.1	2.7	2.6	(2.5)S
18	2.5F	2.5F	2.6F	2.5F	2.7F	3.0F	2.9F	3.3F	5.7F	(6.4)SF	(6.8)S	8.8F	9.1	8.9	7.9	8.2F	8.0	(7.2)S	4.8F	4.5	3.2	3.0	2.8	2.8
19	2.8	3.0F	3.2F	3.7F	3.7	3.9F	4.0FZ	4.3	6.3	6.3	(7.0)S	7.5	8.5	8.8H	7.8Z	7.7	(7.1)S	6.5	5.8	4.6	3.6	[3.2]A	(2.8)S	3.6
20	2.9	3.0	3.2	3.3F	3.5F	3.2F	3.2F	3.8F	(5.8)S	(6.2)JS	6.8	7.4VH	(8.1)SH	7.8H	7.6Z	(7.7)S	7.3	(7.5)S	5.4F	(4.8)SC	3.5F	2.5F	2.6F	2.5F
21	(2.6)JF	K(2.5)SF	2.1FK	(2.2)FK	2.6FK	3.1FK	3.9FK	3.4FK	6.2K	(5.8)NK	6.3K	7.5K	8.0K	8.6ZK	6.3K	(7.5)SK	(7.4)SK	K(5.6)AS	3.7K	[3.2]AP	2.8K	[2.5]AK	(2.2)SK	AK
22	AK	2.1K	K(2.4)AF	2.5FK	[2.6]A	2.7F	2.2F	2.8F	(5.8)SZ	7.1	7.8	8.6	(8.5)ZF	(9.3)S	9.0	(8.3)SV	(9.0)S	8.2	(6.4)S	(6.2)S	5.2	4.5F	2.8BK	3.6K
23	K(4.0)SJ	4.6FK	4.6FK	K(3.1)BA	BK	BK	SK	K(2.3)SV	5.0	6.8	6.4	8.6	8.3	9.1	8.4	8.1	(7.6)S	(6.1)S	4.6	(3.7)S	(2.9)S	2.7	[2.6]A	(2.5)SJ
24	(2.9)SJ	(2.6)JH	(2.5)JH	2.4	2.4	(2.6)H	2.3F	(2.6)HS	5.4	7.1	7.6H	8.6	9.0	9.6	9.0	8.8	8.2	(6.6)S	5.0	3.8	3.0F	(3.0)JS	(2.6)V	(2.5)VF
25	(2.4)VF	(2.5)VF	2.4F	3.0F	2.4F	2.1F	2.0	(2.5)JS	5.2F	6.7	7.8	8.6	10.0	8.6	7.7	(9.4)S	8.6	6.8F	5.2F	5.0F	3.0F	(2.6)JB	2.7	2.4F
26	2.8F	2.8F	3.1FK	1.9K	1.5FK	SBK	BSK	2.5F	5.2F	7.2	8.0	9.2	9.0	7.7F	9.8	(10.0)S	(8.2)S	(7.4)S	(6.2)S	(4.1)S	[2.5]S	(2.4)SP	2.3	(2.3)JS
27	2.6	2.9F	3.0F	3.2FK	1.9FK	BSK	BSK	K(2.4)SF	6.0F	8.0	8.6	7.8	7.2FZ	9.1	8.9	8.4	7.6	7.1	4.8	3.0	2.2	2.2	2.2	(2.1)A
28	2.3F	2.2F	2.2F	2.1F	2.3F	1.8	S	2.4F	5.2F	6.6F	(8.2)F	8.6	(8.1)S	8.8	(8.0)S	8.0	(8.0)S	7.1	(5.7)S	3.5	2.6	[2.2]A	(2.2)JB	[2.5]A
29	(2.8)PF	(2.7)PF	2.5F	2.8F	(2.6)A	2.5F	(3.6)A	3.4F	5.6F	7.6F	9.0	8.5	7.8F	8.0	8.1	8.4	7.4	(6.6)S	(5.5)SF	(3.2)F	2.5F	2.3F	2.2F	2.4F
30	2.4F	2.7F	2.8F	3.2F	3.0F	2.7F	2.3F	2.7F	5.3	7.3	7.5	7.6	7.8	7.9	7.7	7.6F	(7.8)S	6.6	(5.2)F	4.0F	3.1F	(2.7)B	2.8	[2.7]A
31	(2.7)P	2.7	3.1	3.4	3.9	(4.0)JS	3.1	3.1	5.6	7.2	8.4V	8.0	7.7	7.8	7.9	7.8	7.0	(5.6)S	5.6	4.1	(2.9)S	(3.6)S	[3.1]A	3.2
Median	2.8	2.8	3.1	3.3	3.0	2.9	2.7	3.4	6.0	7.2	7.8	8.6	8.6	8.9	8.9	8.7	(8.4)	7.2	5.7	4.5	3.4	2.8	(2.6)	2.7
Count	30	31	31	31	30	28	27	31	31	30	30	29	29	31	31	31	31	31	31	31	31	30	29	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 48

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), December (Month), 1950

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Scaled by: B. E. B., By H., McC.

Lat 38.7°N, Long 77.1°W — 75°W Mean Time

Calculated by: By H., B.E.B., McC.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	(2.2)S	2.2	2.2	2.3F	2.7F	3.0F	3.1F	(6.0)S	6.6F	9.0	8.6F	9.6V	9.2F	(9.2)Z	7.8F	7.7	(7.7)S	5.2	4.2	[3.5]SF	F(2.9)JS	F(2.6)JS	(2.5)S	(2.6)SS
2	2.6F	(3.0)SF	3.5F	3.5F	3.7F	2.6F	F(2.6)JS	5.6	7.0	(7.2)S	(8.2)S	8.7	9.6	9.9	9.0	(8.8)S	(7.7)S	5.8V	(5.0)SF	(3.8)S	(2.8)S	(2.5)S	(2.7)S	2.7
3	(2.8)S	3.2F	3.4	3.5	3.3	2.8F	2.9	(5.7)S	(7.2)S	8.8	9.7	(8.2)S	(8.5)H	8.9	8.6	(9.3)S	8.4	(5.9)S	(5.4)JS	(3.8)S	(3.2)S	2.7F	2.5	2.7
4	(2.8)S	3.0F	3.4	(3.2)S	3.0F	2.8	(2.8)JF	5.6	7.8	7.6	8.6	9.0	8.8	8.8	(8.7)S	(8.9)S	8.8	(6.3)S	(5.2)ZS	(3.7)S	[3.2]A	(2.9)JS	(2.8)S	2.8
5	(3.0)S	3.0F	3.1F	3.1F	3.0	3.0	(3.2)JS	5.4	8.0	9.0	8.2	M	M	9.8	8.7	9.8	(9.1)S	7.0	5.8F	4.7F	(2.9)SF	(2.7)S	2.7	(2.7)S
6	2.9	3.0	3.0	3.0F	(2.6)J	(2.2)J	(2.4)S	5.0	7.2	6.9	7.3	7.6	9.5	9.9	(9.6)S	(9.3)S	9.0	6.6	5.0	3.7	3.1	F(2.7)JS	(2.7)JF	2.9F
7	[3.1]SF	3.4F	[3.6]S	(3.8)SF	3.3F	2.7F	(2.8)SF	(5.5)SF	(8.3)Z	9.2	8.8	9.0	8.8F	9.7	(9.3)S	(9.1)S	(8.9)S	(7.1)S	(5.8)SF	(4.1)JF	3.1F	2.8F	(2.7)JA	2.6F
8	(2.6)SF	(2.7)SF	3.4F	3.9F	4.2F	3.4F	3.0F	5.3FZ	6.7F	8.0F	(8.8)F	(9.0)F	(9.5)S	(9.2)S	(9.7)S	(9.3)S	8.8	6.6F	(6.0)SF	4.6F	J(3.7)SF	2.7F	2.6F	(2.3)SF
9	(2.6)JF	3.0F	3.6F	[3.8]C	4.0F	3.7F	3.7F	(5.8)SF	(7.8)SS	8.9	C	C	C	C	(9.1)S	(8.5)S	(7.8)S	6.7	5.4F	4.0F	3.6	3.3	3.3F	(3.7)S
10	4.0	3.7F	3.8	3.8F	3.6F	(3.4)S	3.5	5.9	8.0	8.3	8.4	9.1	9.3	(9.5)S	9.0	(8.9)S	(8.8)S	(7.2)S	5.0	(3.8)S	3.3F	2.7	F(2.7)JS	F(2.8)JS
11	3.0F	2.9F	3.7F	3.8F	3.6F	3.3F	3.0F	5.6F	6.4FZ	M	M	M	M	8.5	8.6V	8.8	(7.4)JS	5.7	5.0F	3.5	(3.2)B	(2.8)JB	(2.7)JS	(2.7)SB
12	(3.0)B	3.0	(3.2)B	3.6	3.1	2.7	2.8	4.8F	7.6	(8.2)S	(8.8)S	(9.1)S	9.3	10.0	(9.3)SK	(10.6)SK	(10.0)SK	K(9.0)SF	K(7.3)SF	K(5.0)SF	K(3.6)SF	K[4.4]SF	K(5.2)SF	K(5.3)SF
13	K(5.1)SF	K(5.5)SF	5.0FK	4.0FK	2.5FK	2.0FK	K(1.9)SF	4.5F	7.7F	(9.2)SF	8.1F	9.2F	9.4F	10.0Z	(10.7)S	(10.7)S	(10.7)JS	9.1	F(7.8)JS	4.3F	2.9	2.8H	2.9H	(3.8)JS
14	4.1	4.1	3.6	3.0	2.2	[2.0]S	[2.6]SB	(5.0)H	[6.6]M	8.2	8.8	(8.8)H	9.0	8.8	8.9	(9.8)S	8.6	(7.8)J	(8.1)S	4.4	(4.5)JA	[3.4]A	2.4	2.4F
15	2.4F	(3.0)F	4.0F	4.2F	3.3H	2.5	2.2	5.0	7.0Z	7.4H	8H	10.3	9.8V	8.7V	9.0	9.1	9.1	7.0	(5.8)S	(5.2)SF	F(3.7)JS	3.2F	3.2F	F(2.8)JS
16	3.2F	3.5F	3.3F	3.6F	3.1F	(2.5)FS	2.4F	4.6F	6.5F	7.8FZ	7.6F	8.6Z	(8.5)F	8.6F	7.3F	(7.7)SF	F(7.2)JS	5.8FZ	4.9F	3.6F	2.4F	2.2	2.2F	[2.4]SF
17	2.3F	2.4F	2.2F	2.4F	2.4F	(1.9)S	1.8	5.0	7.3V	(6.9)S	[7.6]N	8.6Z	8.8	8.8	8.7	7.9	7.5F	5.1F	(3.9)JS	3.4	2.9	2.6	[2.5]A	2.4
18	2.5F	2.4F	2.5F	2.5F	2.9F	2.9F	2.7F	4.5F	6.4FZ	(7.6)SF	(6.3)F	(8.3)F	9.1Z	8.3	7.5F	8.0	(7.6)S	6.3F	4.9	(3.6)JS	(3.1)B	3.0	2.8	2.7
19	2.9F	3.2F	3.5F	3.6	3.9	4.0F	4.0F	4.9F	6.4	(7.3)FS	7.5	7.8	8.8	7.0	8.0	7.5	7.0	6.3	4.6	(3.9)JS	[3.4]A	(2.8)S	(2.9)S	(3.0)SS
20	3.0	3.1	3.1F	3.2F	3.3F	3.2F	3.1	(5.4)S	6.8	7.0	(8.1)S	7.7	8.2H	7.0H	7.6	(6.5)R	(8.2)JS	6.3	4.7F	(4.4)SF	2.6F	2.5F	(2.5)JF	[2.6]SF
21	F(2.5)JS	2.2FK	2.1FK	2.5FK	3.0FK	K[3.5]SF	3.8FK	4.5K	5.7FK	(5.9)SK	7.0K	7.2K	8.4K	7.7K	(7.2)ZK	8.2K	K(7.2)JS	3.8K	(3.9)AK	[3.0]AK	2.7K	AK	AK	AK
22	K(2.1)SF	2.3FK	2.5FK	2.5FK	2.8F	2.3F	2.3F	4.4FZ	6.3	7.0	8.0	8.1	9.3FZ	(7.4)S	(8.8)S	(8.8)S	(8.3)S	(7.3)S	(6.4)S	(5.4)S	(4.6)SF	(3.6)VH	K(2.5)SS	4.2K
23	4.7K	4.6FK	4.5K	AK	BK	BK	AK	4.2K	(4.0)H	(7.0)S	7.0	8.5	9.0	9.0	8.2	(8.5)S	(7.6)S	5.3	4.0	3.3	A	A	2.5F	2.7F
24	3.2	2.7	(2.8)H	(2.4)H	(2.5)H	2.2F	2.3F	(4.2)JS	6.0	7.6	7.8	8.6	9.7	9.3	9.0	8.8	(7.2)S	(6.3)S	4.4	3.5	3.3F	3.0F	(2.4)V	(2.4)JS
25	(2.6)VS	2.2F	2.4F	3.0	2.2	(2.0)JS	(1.9)B	4.0F	6.6F	6.8	7.6	9.2	9.8	7.8	9.0	(9.6)S	(7.8)S	(6.2)SF	(5.2)SF	4.4F	3.0	2.7	2.8F	2.6F
26	2.6F	3.0F	K(2.6)VF	K(2.3)BJ	K(1.5)FS	1.9K	SK	4.0F	7.0	7.6	9.1	9.4F	8.4	8.6	(9.6)S	(10.0)S	8.0	(6.2)S	(5.2)JS	(2.9)S	(2.2)SJ	(2.3)S	(2.2)S	(2.4)JS
27	(2.7)SF	2.9F	2.9F	2.6FK	[1.5]SK	BK	SK	4.3FK	5.1F	8.6	8.1	7.2	7.9	9.2	8.1F	7.9	(7.6)S	5.7	4.3	2.4	(2.1)SB	2.3	[2.2]A	(2.5)A
28	2.5F	(2.2)JF	2.1F	2.3F	2.1F	(1.8)JF	S	4.2F	6.2F	7.0	8.5F	8.7	7.9F	8.8	8.0	(8.8)S	(7.8)S	6.4	4.6	[3.0]A	2.3	[2.2]A	2.2	[2.6]A
29	3.1FZ	2.5	2.7F	2.6F	[2.6]A	3.1	3.0F	4.9F	5.8F	9.0	8.4F	8.0	[7.9]C	8.2	8.0	(7.6)S	(7.8)S	(6.2)S	(3.9)FS	(2.7)SF	2.4	2.3	2.2	2.4F
30	2.4F	2.6F	3.0	3.1F	2.9F	2.6F	2.2F	4.1	6.6	7.1Z	8.0	8.0	7.8	8.0	7.6	7.8	7.2	(6.2)S	4.9	(3.8)SF	3.0F	2.7	2.7	[2.7]A
31	2.7	2.8	3.1F	3.5	(4.1)S	3.5	2.9	5.0	6.2V	8.6	8.0H	8.2	7.8	7.7	7.8	(7.3)S	(6.6)S	5.7	(5.2)S	(3.5)S	(3.0)S	(3.1)S	[3.1]A	(3.1)S
dian	2.8	3.0	3.1	3.2	3.0	2.7	2.8	5.0	6.6	7.6	8.1	8.6	8.9	8.8	8.7	(8.8)	(7.8)	6.3	(5.0)	(3.8)	(3.0)	2.7	(2.7)	(2.7)
ount	31	31	31	30	30	29	27	31	31	30	29	28	28	30	31	31	31	31	31	31	30	29	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 49

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), December (Month), 1950

Observed at Washington, D. C.

Lat 38.7°N, Lang 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: B.E.B., By. H., McC.

Calculated by: By. H., B.E.B., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										200 H	220	200 H	190 H	220	220	Q								
2										Q	230	200 H	200 H	250	230	230								
3										Q	Q	Q	Q	Q	230	230								
4										Q	230 H	200 H	230	240	200	Q								
5										Q	Q	M	M	200 H	240	240								
6										230	220	210	190 H	250	260	220								
7										230	230	[220] B	220	Q	Q	Q								
8										Q	230	210	230	200	240	Q								
9										Q	200	230	[220] C	210	230	A								
10										Q	Q	A	230	220	240	Q								
11										M	M	M	M	210	230	Q								
12										Q	Q	220	200 H	220	230 K	230 K								
13										Q	Q	200 H	Q	210	230 H	Q								
14										Q	Q	Q	230	210	230	240								
15										Q	Q	220	220	200	200 H	Q								
16										Q	Q	200	A	A	Q	Q								
17										Q	Q	A	A	A	A	Q								
18										Q	Q	A	A	A	A	A								
19										Q	220	220	220 H	230	220	Q								
20										Q	220	220	[210] A	200	220	Q								
21										Q K	Q K	A K	220 K	[220] A K	210 K	A K								
22										210	220	210	240 H	230	220 H	A								
23										Q	Q	Q	210	220	220	220								
24										Q	Q	220	200	240	220	220								
25										Q	Q	210	200 H	220	200	250								
26										Q	Q	B	220	200	Q	Q								
27										Q	Q	220	220	(200) B	220	Q								
28										Q	230	230	220	200 H	220	Q								
29										Q	(240) B	200	[220] B	230	240	Q								
30										Q	Q	220	(230) B	(240) B	230	210								
31										A	A	200 H	220	200	(230) B	(230) B	230							
edian										—	220	210	220	220	230	230	—							
ount										4	12	21	24	24	26	11	1							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 50

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), December (Month), 1950

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Lang 77.1°W

75°W Mean Time

Scaled by: B.E.B., By.H., McC.

Calculated by: By.H., B.E.B., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L	Q								
2										Q	L	L	L	L	L	L								
3										Q	Q	Q	Q	Q	L	L								
4										Q	L	L	L	L	L	Q								
5										Q	Q	M	M	L	L	L								
6										L	L	L	L	L	L	L								
7										L	L	L	L	Q	Q	Q								
8										Q	L	L	L	L	L	Q								
9										Q	L	L	C	L	L	L								
10										Q	Q	L	L	L	L	Q								
11										M	M	M	M	L	L	Q								
12										Q	Q	L	L	L	L[K]	L[K]								
13										Q	Q	L	Q	L	L	Q								
14										Q	Q	Q	L	L	L	L								
15										Q	Q	L	L	L	L	Q								
16										Q	Q	L	A	A	Q	Q								
17										Q	Q	A	A	A	L	Q								
18										Q	Q	A	L	A	A	A								
19										Q	L	L	L	L	L	Q								
20										Q	L	L	A	L	L	Q								
21										Q[K]	Q[K]	L[K]	L[K]	L[K]	L[K]	L[K]								
22										L	L	L	L	L	L	L								
23										Q	Q	Q	L	L	L	L								
24										Q	Q	L	L	L	L	L								
25										Q	Q	L	L	L	L	L								
26										Q	Q	B	L	L	Q	Q								
27										Q	Q	L	L	L	L	Q								
28										Q	L	L	L	L	L	Q								
29										Q	L	L	B	L	L	Q								
30										Q	Q	L	L	L	L	L								
31										A	A	L	L	L	L	L	L							
Median										—	—	—	—	—	—	—	—							
Count																								

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 51

Central Radio Propogation Laboratory, National Bureau of Standards, Washington 25, D. C.

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), December (Month), 1950

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat. 38.7°N, Lang. 77.1°W

75°W Mean Time

Scaled by: B.E.B., By.H., McC.

Calculated by: By.H., B.E.B., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									(130)^{S}	120	120	120	120	(110)^{B}	(100)^{A}	(120)^{B}	(120)^{B}							
2									(130)^{S}	110	(100)^{A}	110	110	(110)^{S}	110	(110)^{S}	S							
3									(120)^{S}	110	110	100	(110)^{S}	(110)^{S}	100	110	120							
4									(120)^{S}	(120)^{A}	120	(100)^{A}	(100)^{A}	110	100	100	(140)^{S}							
5									S	120	120	M	M	120	(100)^{S}	(130)^{A}	(120)^{A}							
6									(100)^{A}	100	120	120	120	(120)^{A}	(120)^{B}	S	B							
7									S	(130)^{S}	(100)^{A}	(100)^{A}	(100)^{A}	100 ^{H}	[100]^{S}	(100)^{S}	(110)^{A}							
8									(130)^{S}	S	S	S	S	S	S	(100)^{A}	(110)^{A}							
9									(110)^{A}	110	(100)^{A}	100 ^{H}	[110]^{C}	(120)^{S}	100 ^{H}	(100)^{A}	(100)^{A}							
10									110	110	(110)^{A}	(110)^{A}	(100)^{A}	(110)^{A}	(120)^{S}	(120)^{S}	(100)^{A}							
11									S	M	M	M	M	(110)^{S}	(100)^{S}	(100)^{S}	S							
12									(130)^{S}	110	(110)^{S}	(110)^{S}	(110)^{S}	110	110 ^{K}	(110)$^{B}_{K}$	(120)$^{S}_{K}$							
13									(100)^{A}	(110)^{S}	(110)^{S}	(110)^{S}	110	(110)^{S}	(110)^{S}	110								
14									(100)^{A}	100	(100)^{S}	[100]^{S}	(100)^{S}	110	(110)^{S}	110	(120)^{S}							
15									(120)^{S}	(100)^{A}	(100)^{A}	(110)^{A}	(100)^{A}	(100)^{A}	(100)^{A}	(100)^{A}								
16									S	(110)^{S}	(110)^{S}	(100)^{S}	(100)^{A}	S	S	B								
17									(100)^{A}	(110)^{A}	(100)^{A}	100	110	(110)^{A}	(110)^{A}	A								
18									S	(100)^{S}	(110)^{A}	S	S	A	A	A	(110)^{A}							
19										(110)^{S}	[110]^{S}	(110)^{S}	(100)^{S}	S	(100)^{A}	(100)^{A}	(110)^{A}							
20										S	(110)^{S}	S	A	(100)^{A}	[110]^{S}	(120)^{S}	(120)^{B}							
21									S ^{K}	(100)$^{A}_{K}$	(110)$^{A}_{K}$	(110)$^{A}_{K}$	110 ^{K}	(110)$^{B}_{K}$	[110]$^{B}_{K}$	(110)$^{A}_{K}$	(110)$^{A}_{K}$							
22										(100)^{A}	(100)^{A}	(110)^{S}	(110)^{S}	(110)^{S}	(100)^{S}	(110)^{A}								
23										110	110	120	120	110	100	S								
24									140	100	(100)^{A}	[100]^{B}	110	110	(110)^{S}	A								
25										B	B	B	(100)^{S}	110	100	100								
26										B	B	B	S	S	S	S	S							
27										B	B	B	(100)^{A}	(110)^{B}	[110]^{B}	(110)^{A}								
28										B	(100)^{A}	B	S	S	S	S								
29										A	B	B	B	S	S	B								
30										B	B	B	B	B	B	B	S							
31									A	A	A	B	B	B	B	B								
Median									(120)	110	(110)	(110)	(110)	(110)	(100)	(110)	(120)							
Count									14	21	23	19	21	22	23	20	4							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 52

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), December (Month), 1950

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: B.E.B., By. H.

Calculated by: By H., B.E.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									1.8	2.4	2.8	3.0	(3.0)B	3.0	2.9	2.6	1.9							
2									(2.0)S	(2.6)S	2.9	3.6	3.1	(3.0)S	2.9	(2.6)S	S							
3									(2.0)S	(2.5)S	2.9	3.0	3.0	3.0	2.9	2.5	2.1							
4									2.1	[2.4]A	2.7	A	A	3.0	2.8	[2.6]A	(2.3)S							
5									1.8	2.5	2.9	M	M	2.9	2.8	A	A							
6									A	(2.5)S	2.9	3.0	3.0	[2.9]A	2.8	(2.5)S	B							
7									2.1	2.6	(2.8)A	(3.0)B	3.1	3.0	2.9	2.5	A							
8									(2.1)S	(2.5)S	2.9	3.0	3.0	3.0	(2.9)S	A	A							
9									A	(2.5)S	(2.8)S	3.0	[3.0]C	3.0	3.0	A	A							
10									(2.1)S	2.4	A	A	(3.1)S	3.0	3.0	(2.5)S	A							
11									(2.1)S	M	M	M	M	3.0	2.9	(2.6)S	S							
12									(2.0)S	(2.5)S	2.8	3.0	3.1	3.0	2.9K	2.5K	2.1 HK							
13									A	2.5	2.7	2.9	3.0	3.0	(2.8)S	(2.5)B								
14									(2.2)A	2.5	(2.8)S	3.0	3.1	3.0	2.8	2.3	1.9							
15									2.0H	(2.5)S	2.8	(2.9)A	3.0	3.0	2.7	[2.4]B								
16									(2.0)H	2.3	(2.6)H	2.8	2.8	2.8	2.7	2.4								
17									(2.0)A	(2.4)S	[2.6]A	2.8	3.0	A	A	A								
18									(1.9)S	(2.5)S	2.5	2.6	(2.8)A	A	A	A								
19										S	2.5	2.7	(2.9)S	2.9	A	A	A							
20										2.3	(2.6)S	(2.8)S	[2.8]A	(2.8)S	2.7H	2.3	B							
21									S K	A K	2.6K	[2.6]BK	2.7K	2.8K	2.7K	(2.3)AK	A K							
22										A	2.6	2.9	(3.0)S	(2.9)S	(2.5)S	A								
23										2.3S	(2.4)S	2.9	(2.9)S	(2.8)S	(2.5)S	S								
24									S	S	A	B	(2.7)S	2.7	2.5	A								
25										B	B	B	2.7	2.7	2.5	S								
26										B	B	B	S	S	S	S	S							
27										B	B	B	S	B	B	A								
28										B	A	B	S	S	S	S								
29										A	B	B	B	S	S	B								
30										B	B	B	B	B	B	B	(2.0)S							
31									A	A	A	B	B	B	B	B								
Median									(2.0)	(2.5)	2.8	2.9	3.0	3.0	2.8	(2.5)	2.0							
Count									15	19	21	19	22	23	22	15	6							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 53

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), December (Month), 1950

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Lang 77.1°W

75°W Mean Time

Scaled by: B.E.B., By.H.

Calculated by: By.H., B.E.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.7 110	G	G	2.4 Y 110	G	G	G	12.4 Y 100	G	G	G	2.3 100	2.1 100	2.0 100	2.8 100	G	G	G	G	G	G	G	G	3.1 100
2	2.2 100	6.5 140	8.4 Y 130	6.7 100	G	G	G	17.9 Y 130	G	G	3.6 Y 100	7.0 Y 110	G	G	G	G	G	G	G	G	G	G	G	G
3	G	G	G	G	8.8 Y 100	G	G	G	G	G	G	G	G	G	G	G	G	2.0 100	G	G	G	G	G	G
4	G	G	G	G	G	G	8.8 Y 120	6.4 Y 120	G	(2.8) S 120	G	5.6 100	4.0 100	G	G	3.1 100	G	3.7 120	2.4 Y 110	(1.4) S 110	7.8 100	5.6 100	G	4.0 110
5	G	G	G	G	G	G	2.3 Y 120	3.6 Y 110	G	G	G	M	M	G	G	3.7 Y 130	2.2 Y 120	G	G	G	G	G	G	G
6	G	G	G	G	G	G	G	G	(1.7) S (100)	G	G	G	G	3.1 120	G	G	G	G	G	G	2.2 100	G	G	G
7	G	G	4.2 110	5.3 110	6.6 Y 100	G	G	G	6.0 Y 110	G	3.9 100	2.9 100	3.8 100	G	G	4.1 120	3.3 110	G	G	G	G	1.2 F 110	7.0 110	4.4 F 110
8	G	4.2 110	6.5 110	5.4 110	3.6 Y 100	G	4.4 130	G	G	G	G	G	G	G	G	3.0 100	2.2 110	2.0 Y 100	2.1 100	G	1.8 F 100	1.4 110	G	G
9	G	G	G	G	G	G	G	G	3.6 Y 110	G	3.0 100	G	C	G	G	4.4 100	5.8 100	7.0 Y 100	G	G	G	3.7 100	3.0 F 100	G
10	5.3 Y 110	5.2 100	3.0 Y 100	2.8 Y 100	3.4 Y 120	3.1 Y 100	1.8 110	G	G	G	5.2 110	5.6 F 110	2.6 100	2.8 110	G	G	2.2 Y 100	2.5 100	2.1 100	(1.8) S 100	2.8 Y 100	G	G	3.1
11	G	G	G	G	G	G	5.7 Y 110	6.6 Y 110	G	M	M	M	M	G	G	G	G	G	G	G	G	G	G	G
12	B	G	G	G	G	G	G	G	5.8 Y 120	G	G	7.0 Y 100	G	G	G	G	G	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	3.0 Y 100	4.0 100	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
14	G	G	G	G	G	G	1.0.0 110	6.1 F 180	4.8 Y 100	G	G	G	G	G	G	G	G	G	G	G	G	1.2.2 110	8.0 110	G
15	3.0 Y 100	G	G	G	G	G	G	G	G	2.2 100	2.4 100	1.6.5 Y 110	4.3 Y 100	3.3 100	2.4 100	2.0 100	2.0 100	G	G	G	G	G	G	G
16	G	G	G	G	3.1 Y 100	G	G	G	G	G	G	G	4.8 Y 110	4.1 Y 120	4.2 110	G	G	3.8 Y 110	2.0 120	G	G	G	G	G
17	G	G	G	G	2.9 Y 110	3.6 110	1.1 110	2.7 Y 110	4.0 F 100	3.7 110	4.4 100	4.9 120	5.2 120	5.4 110	(6.8) S 110	9.6 100	5.6 100	5.8 100	1.7 100	3.3 100	G	G	3.1 Y 111	G
18	3.7 Y 110	G	5.0 110	3.1 110	2.6 Y 110	3.8 Y 110	3.2 110	G	G	G	5.2 110	5.6 110	4.2 Y 110	6.5 110	4.0 110	7.3 110	4.2 Y 110	3.7 Y 110	G	G	G	G	G	G
19	G	G	G	G	G	G	G	G	G	G	G	G	G	G	4.6 Y 100	5.7 100	2.2 110	G	G	9.0 Y 110	5.0 100	2.2 Y 100	5.0 Y 110	G
20	G	G	G	G	2.8 110	G	G	G	G	G	G	G	7.0 100	3.0 100	G	G	G	3.1 Y 100	G	G	G	(2.7) S 100	3.4 110	2.4
21	G	G	2.6 110	G	6.0 Y 160	5.0 F 120	G	G	G	3.8 100	5.0 110	4.5 110	6.4 Y 100	3.3 120	3.2 120	3.7 Y 110	5.2 110	9.4 110	7.6 110	7.0 100	5.0 00	5.6 100	7.5
22	3.3 110	3.0 110	4.0 100	4.2 100	5.2 100	3.3 100	3.0 100	5.0 F 100	7.0 100	2.4 100	2.3 100	(2.2) S 100	G	G	G	3.6 Y 110	G	G	3.6 100	5.1 Y 100	G	G	G	G
23	G	G	G	3.4 110	2.5 110	G	G	3.0 Y 100	G	G	G	G	G	G	G	G	G	3.7 Y 110	4.3 Y 100	(6.0) S 120	G	3.2 Y 100	2.5 Y 120	4.0 100
24	2.0 Y 100	3.0 Y 100	G	2.8 Y 110	2.7 Y 110	2.5 Y 100	G	G	G	2.3 Y 100	3.5 Y 100	G	G	G	G	2.4 Y 100	2.3 Y 100	3.3 100	G	G	G	G	G	G
25	G	G	G	2.2 100	2.4 .00	2.5 100	2.8 120	G	G	G	G	G	G	G	G	G	G	1.7 120	1.3 150	G	G	G	G	G
26	G	G	G	G	G	B	B	G	G	G	G	G	G	G	3.2 130	3.3 120	G	3.0 Y 110	(3.1) S 120	(6.8) S 110	4.2 110	(2.0) S 111	G	G
27	G	G	G	G	G	B	B	G	G	G	G	G	3.1 100	G	G	3.0 110	2.8 120	G	G	G	G	G	G	G
28	3.0 110	G	G	2.6 Y 100	G	2.5 100	2.6 Y 100	3.5 100	3.2 110	G	2.5 100	G	G	G	G	G	(2.8) S 120	G	3.0 Y 120	3.4 120	2.6 120	(4.2) Y 110	2.5	4.0
29	G	G	G	G	6.8 110	5.5 Y 120	6.0 100	G	3.0 110	7.0 110	G	G	G	G	G	G	5.6 Y 120	(2.5) S 100	G	3.5 100	2.1 F 111	G	G	G
30	G	3.2 110	3.5 Y 110	3.5 Y 0	3.0 F 110	3.0 F 100	2.8 F 0	2.7 Y 110	G	G	G	G	G	G	G	G	G	G	G	3.0 Y 111	G	G	G	G
31	2.9 100	3.3 100	3.0 100	3.4 Y 100	3.5 100	2.5 Y 100	G	G	2.1 130	4.9 Y 120	6.0 100	G	G	G	G	G	G	(3.3) S 100	(4.0) S 0	5 (1.0.0)	G	(2.8)		
Median	**	**	**	**	2.4	**	**	**	**	**	**	**	**	**	**	**	**	1.9	**	**	**	**	**	**
Count	30	31	31	31	31	29	29	31	31	30	30	29	28	31	31	31	31	31	31	30	31	31	31	31

** MEDIAN fEs LESS THAN MEDIAN foE, OR LESS THAN LOWER FREQUENCY LIMIT OF RECORDER

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 54

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Form adopted June 1946

IONOSPHERIC DATA

(M1500)F2 (Characteristic), ____ (Unit), December (Month), 1950

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Scaled by: B.E.B., By H., McC.

Lat 38.7°N, Long 77.1°W — 75°W Mean Time

Calculated by: By H., B.E.B., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	1.8	2.0	1.9 F	1.9 F	2.0 F	2.0 F	(2.3) S F	2.5 F	(2.3) S F	2.3	2.3 V	2.2 F	2.1 V F	(2.2) F	2.3 Z	2.2	2.3	2.1	5 F	2.4 F	2.0 F	(2.0) S	(1.9) J S
2	(1.8) S F	1.9 F	2.0 F	2.1 F Z	2.1 F	2.4 F	2.1 F	(2.1) S	(2.3) S	2.4	(2.2) S	(2.1) S	2.3	2.2	2.3	(2.2) S	(2.3) S	2.3	(2.2) S	2.2	2.1 F	(1.9) S	(1.9) S	(1.8) S
3	(1.8) S	(1.9) S	2.0 F	2.1	2.1	2.2 F	2.1 F	(2.2) S	(2.2) S	2.3	(1.9) S H	2.1	2.1 F	2.2	2.2 F	2.1	2.2	2.3	(2.0) S	(2.3) J S	2.2	2.2	(2.1) S	1.9
4	1.9	1.9 F	2.1 F	2.2	2.1 F Z	2.1	(2.1) J F	(2.1) S Z	2.3	2.4	(2.3) S	2.2	2.2	2.2	2.2	2.2	(2.3) S	(2.3) S	(2.3) S	2.2	A	2.0	1.9	1.8 F
5	(1.9) J S	2.0	2.0	2.1 F	2.1	2.0	2.0	2.1	2.4	2.4	2.4	M	M	2.2	2.2	(2.0) S	2.1	2.3	2.1 F	(2.2) S F	2.3	(1.8) S	(1.8) J S	1.8
6	1.8	1.8	1.8	1.8	1.8	2.0	(1.8) J S	1.9	2.2	(2.2) S F	2.3	2.0	2.1	2.1	2.2	(2.1) S	2.3	2.3	2.1 F Z	2.4	1.9	(2.0) J F	(2.0) J F	(1.9) S F
7	1.9 F	1.9 F	(2.0) F	5 F	(2.1) S F	2.2 F	(2.0) S F	(2.2) S F	2.4 Z	2.3	2.4 F Z	2.4	2.3 Z	2.2 F Z	2.2 Z	(2.2) S	2.2	(2.3) S	2.2	2.1 F	2.3 F	2.0 F	2.0 F	1.9 F
8	1.9 F	(1.9) J F	(2.0) S F	1.9 F	(2.0) S F	(2.4) S F	1.9 F	2.1 F	2.4 Z F	2.4 F	(2.2) S	2.2 F	(2.2) S	(2.2) S F	(2.1) S	(2.2) S	(2.2) S	2.2 F	(2.1) S F	(2.4) S F	(2.2) F	2.4 F	(2.0) S F	(2.0) S F
9	(1.9) S F	2.0 F	2.0 F	1.9 F	2.0 F	2.1 F	2.0 F	2.1 F	2.3 F	(2.3) S	(2.2) S Z	(2.3) S	C	2.2	(2.2) S	(2.3) S	(2.3) S	(2.2) S	(2.2) S F	2.3 F	(2.2) J S	2.0	2.0 F	1.9
10	1.9	(1.9) S	1.9 F	1.9 F	2.1 F	2.0 F	2.0 F	2.2 F	2.3	2.2 V	(2.3) H	2.2	2.2	2.2	2.2	(2.2) S	(2.3) J	2.3	2.2	(2.2) S	2.2 F	2.1 F	(1.8) J S	(1.9) S J
11	(2.0) S F	(2.0) S F	1.9 F	(1.9) F	2.0 F	2.1 F	2.2 F	(2.2) S F	F	M	M	M	M	2.1	2.2	(2.2) S	2.3	2.3	2.0	(2.3) Z F	2.2	(1.9) B	(1.9) S	(1.9) J S
12	B	(2.0) S	(2.0) B	2.0	(2.3) J B	2.0	1.9	2.1 F	2.4	2.4 F	2.3 F	(2.2) S	(2.2) S	2.1	2.1 K	2.0 K	(2.1) S K	(2.1) S K	(2.1) F K F	(2.1) S K S	(1.9) F K H	(1.8) F K	F S K	F S K
13	S (1.9) F K	(1.9) F S K	(2.1) F K	S F K	2.1 F K	1.9 F K	S F K	2.1 F	2.3 F	2.3 F	(2.5) S	2.2 Z F	2.2 Z	2.1 F	2.0	(2.1) S	(2.0) S	(2.2) S	(2.1) J S	2.2	(2.1) J V	1.8 H	(1.6) H	(1.7) K
14	(1.8) J B	2.0	2.1	2.1	2.3	(2.0) S B	(1.8) J B	2.1	N	(2.2) S	(2.2) S	2.3	(2.2) S	2.2	2.1	2.0	(2.3) S	2.0	2.0	(2.2) P	2.0	A	A	1.8 F
15	1.9 F	1.9 F	2.0 F	(2.0) S F	2.2	2.2 F	2.0	1.9	2.3	2.3	2.3 H	2.0	2.3	2.2 V	2.2	2.2	(2.1) S	2.2	2.1	2.1 F	2.2 F	2.1 F	2.0 F	1.9 F
16	1.9	1.9 F	2.1 F	(2.0) S F	2.1 F	2.1 F	2.0 F	2.1 F Z	2.4 F	(2.4) S F	(2.3) S F	2.3 F Z	2.3 F	2.3 F	2.2 F	2.2	2.3 F	2.3 F	(2.3) S F	2.2 F	(2.3) J F	2.1 F	1.9	1.9 F
17	1.9 F	2.0 F	(2.0) S F	2.1 F	2.2 F	2.3 F	2.0	2.0	2.4	(2.4) S	2.5	2.5	2.3	2.3	2.3	2.3 F	2.3 F	2.3 F	2.2 F	2.0	2.1	2.0	1.9	(2.0) S
18	2.0 F	2.1 F	2.0 F	2.1 F	2.0 F	2.0 F	2.1 F	2.2 F	2.3 F	(2.4) S F	(2.5) S	2.3 F	2.2	2.3	2.3	2.2 F	2.3	(2.3) S	2.1 F	2.1	2.0	1.9	1.8	1.8
19	1.9	2.0 F	1.9 F	1.9 F	1.9	1.8 F	1.9 F Z	2.1	2.4	2.4	(2.3) S	2.3	2.3	2.2 H	2.0 Z	2.2	(2.2) S	2.1	2.2	2.2	2.2	A	(1.9) S	2.0
20	1.9	2.0	2.1	2.1 F	2.0 F	2.0 F	2.0 F	2.0 F	(2.4) S	(2.5) J S	2.3	2.3 V H	(2.3) S H	2.3 H	2.2 Z	(2.1) S	2.0	(2.4) S	2.2 F	(2.1) S F	2.3 F	2.0 F	2.1 F	2.0 F
21	(1.8) J F S	(2.0) F K	2.0 F K	(2.0) F K	2.0 F K	2.1 F K	2.0 F K	2.2 F K	2.5 K	(2.3) H K	2.3 K	2.3 K	2.2 K	2.4 Z K	2.4 K	(2.1) S K	(2.4) S K	(2.5) A K	1.9 K	A K	2.2 K	A K	(1.9) S K	A K
22	A K	2.0 K A	(2.1) F K	2.1 F K	A	2.3 F	2.0 F	2.1 F	(2.3) S N	2.3	2.2	2.1	(1.9) Z F	(2.1) S	2.2	(2.0) S V	(2.2) S	2.1	(2.0) S	(2.0) S	2.0	1.8 F	1.6 G K	2.0 K
23	S (1.8) J K	1.9 F K	1.9 F K F	(2.1) A K	B K	B K	S K S	(2.0) V K	2.5	2.2	2.2	2.0	2.1	2.2	2.2	2.2	(2.3) S	(2.3) S	2.2	(2.0) S	(1.9) S	1.9	A	(1.9) J S
24	(1.9) J S	(1.9) J H	(2.1) J H	1.9	1.9	(2.3) H	2.0 F	(1.9) S H	2.3	2.1 V	2.3 H	2.1	2.0	2.1	2.1	2.2	2.3	(2.3) S	2.2	2.0	1.9 F	(1.8) J S	(2.0) V	(1.9) V F
25	(2.0) F V	(2.1) V F	1.9 F	2.0 F	2.0 F	2.0 F	2.1	(2.0) J S	2.3 F	2.4	2.4	2.2	2.3	2.3	2.0	(2.2) S	2.2	2.2 F	2.2 F	2.2 F	2.0 F	(1.9) J S	1.9	1.9 F
26	1.7 F	1.9 F	2.0 F K	2.2 K	2.0 F K	S B K	B S K	2.0 F	2.3 F	2.3	2.3	2.3	2.3	2.3 F	2.2	(2.3) S	(2.4) S	(2.1) S	(2.3) S	(2.4) S	S	(1.8) J S F	1.9	(1.9) J S
27	1.9	2.0 F	2.2 F	2.3 F K	2.4 F K	B S K	B S K S	(2.1) F K	2.6 F	2.5	2.4	2.5	2.2 F Z	2.2	2.2	2.3	2.4	2.3	2.1	2.3	1.8	1.8	1.9	(1.8) A
28	2.0 F	2.1 F	2.0 F	2.2 F	2.2 F	2.0	S	2.1 F	2.4 F	2.3 F	(2.3) F	2.3	(2.2) S	2.2	(2.1) S	2.2	(2.3) S	2.2	(2.3) S	2.1	2.1	A	(1.7) J B	A
29	(1.9) F D	(1.9) F D	1.9 F	2.1 F	(2.0) A	2.1 F	(2.0) A	2.1 F	1.9 F	2.3 F	2.4	2.4	2.2 F	2.2	2.2	2.3	2.3	(2.3) S	(2.3) S F	(2.1) F	2.0 F	1.9 F	1.9 F	1.9 F
30	2.0 F	2.0 F	2.0 F	2.1 F	2.0 F	2.0 F	2.1 F	2.3 F	2.4	2.4	2.3	2.3	2.3	2.1	2.1	2.3 F	(2.3) S	2.3	(2.1) F	2.3 F	2.0 F	(2.0) B	2.0	A
31	(1.9) P	1.9	1.9	1.9	1.9	(2.2) J S	2.2	2.1	2.3	2.3	2.2 V	2.3	2.2	2.2	2.1	2.3	2.3	(2.3) S	2.1	2.2	(1.8) S	(1.8) S	A	1.9
Median	1.9	1.9	2.0	2.1	2.0	2.1	2.0	2.1	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	(2.3)	2.3	2.1	2.2	2.1	1.9	1.9	1.9
Count	28	31	31	29	29	28	26	31	29	30	30	29	28	31	31	31	31	31	31	29	29	27	27	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 55

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F2 (Characteristic), ____ (Unit), December (Month), 1950

Observed at Washington, D.C.

Lat 38.7°N, Lang 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: B.E.B., By.H., McC.

Calculated by: By.H., B.E.B., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	2.7	3.0	2.9 F	2.9 F	2.9 F	3.0 F	(3.3) Z	3.5 F	(3.4) S F	3.4	3.3 V	3.3 F	3.1 V F	(3.2) F	3.4 Z	3.3	3.3	3.1	5 F	3.4 F	3.0 F	(3.0) S	(2.8) J S
2	(2.8) S F	2.8 F	2.9 F	3.1 F Z	3.1 F	3.5 F	3.1 F	(3.1) S	(3.4) S	3.5	(3.2) S	(3.2) S	3.3	3.1	3.3	(3.2) S	(3.3) S	3.3	(3.2) S	3.2	3.1 F	(2.9) S	(2.8) S	(2.7) S
3	(2.8) S	(2.8) S	2.9 F	3.1	3.1	3.2 F	3.1 F	(3.3) S	(3.3) S	3.4	(2.9) S H	3.1	3.2 F	3.2	3.2 F	3.1	3.2	3.3	(3.0) S	(3.3) J S	3.1	3.2	(3.1) S	2.8
4	2.8	2.8 F	3.1 F	3.2	3.2 F Z	3.1	(3.1) J F	(3.1) S Z	3.3	3.5	(3.3) S	3.2	3.2	3.2	3.2	3.2	(3.3) S	(3.3) S	(3.3) S	3.2	A	3.0	2.9	2.8 F
5	(2.8) J S	3.0	3.0	3.1 F	3.1	3.0	3.0	3.0	3.4	3.5	3.4	M	M	3.2	3.2	(3.0) S	3.1	3.3	3.1 F	(3.2) S F	3.3	(2.7) S	(2.7) J S	2.7
6	2.7	2.8	2.8	2.8	2.8	3.0	(2.7) J S	2.8	3.2	(3.2) S F	3.3	3.0	3.1	3.0	3.2	(3.1) S	3.3	3.3	3.1 F Z	3.4	2.8	(3.0) J F	(2.9) J F	(2.9) S F
7	2.9 F	2.8 F	(3.0) F	5 F	(3.1) S F	3.2 F	(3.0) S F	(3.3) S F	3.5 Z	3.4	3.4 F Z	3.5	3.3 Z	3.2 F Z	3.2 Z	(3.2) S	3.2	(3.3) S	3.2	3.1 F	3.3 F	3.0 F	3.0 F	2.9 F
8	2.9 F	(2.8) J F	(3.0) S F	2.9 F	(3.0) S F	(3.4) S F	2.8 F	3.1 F	3.4 Z F	3.4 F	(3.2) S	3.2 F	(3.3) S	(3.2) S Z	(3.1) S	(3.2) S	(3.2) S	3.2 F	(3.2) S F	(3.4) S F	(3.2) F	3.4 F	(3.0) S F	(3.0) S F
9	(2.9) S F	3.0 F	2.9 F	2.8 F	3.0 F	3.1 F	3.0 F	3.1 F	3.4 F	(3.4) S	(3.2) S Z	(3.3) S	C	3.2	(3.2) S	(3.3) S	(3.4) S	(3.2) S	(3.2) S F	3.3 F	(3.2) J S	3.0	2.9 F	2.8
10	2.9	(2.9) S	2.8 F	2.9 F	3.0 F	3.0 F	3.0 F	3.2 F	3.3	3.2 V	(3.3) H	3.3	3.2	3.2	3.2	(3.2) S	(3.3) J	3.4	3.2	(3.3) S	3.3 F	3.1 F	(2.8) J S	(2.9) J S
11	(3.0) S F	(3.0) S F	2.9 F	(2.9) F	3.0 F	3.1 F	3.3 F	(3.3) S F	F	M	M	M	M	3.1	3.2	(3.2) S	3.3	3.3	3.0	3.3 F Z	3.2	(2.8) J B	(2.8) S	(2.9) J S
12	B	(2.9) S	(2.9) B	3.0	(3.3) J B	3.0	2.9	3.1 F	3.4	3.4 F	3.4 F	(3.2) S	(3.2) S	3.2	3.1 K	2.9 K	(3.1) S K	3.1) S K	K(3.1) S F	K(3.0) S F	K(2.8) S F	K(2.7) H F	F S K	F S K
13	K(2.8) S F	K(2.8) S F	K(3.1) S F	S F K	3.0 F K	2.9 F K	5 F K	3.1 F	3.4 F	3.4 F	(3.5) S	3.2 Z F	3.3 Z F	3.1 F	3.1	(3.1) S	(3.0) S	(3.3) S	(3.1) J S	3.3	(3.1) J V	2.7 H	(2.5) H	(2.6) R
14	(2.8) J S	2.9	3.1	3.1	3.4	(3.0) S B	(2.7) J B	3.1	N	(3.3) S	(3.2) S	3.4	(3.2) S	3.2	3.1	3.0	(3.3) S	2.9	2.9	(3.3) P	3.0	A	A	2.8 F
15	2.9 F	2.9 F	2.9 F	(3.0) S F	3.3	3.2 F	3.0	2.8	3.3	3.4	3.3 H	3.0	3.3	3.2 V	3.2	3.2	(3.1) S	3.2	3.1	3.1 F	3.2 F	3.1 F	3.0 F	2.9 F
16	2.9	2.8 F	3.1 F	(3.0) F S	3.1 F	3.1 F	3.0 F	3.1 F Z	3.5 F	(3.5) S Z	(3.4) S F	3.3 F Z	3.3 F	3.3 F	3.2 F	3.3	3.4 F	3.4 F	(3.4) S F	3.3 F	(3.4) J F	3.1 F	2.7	2.9 F
17	2.9 F	3.0 F	(3.0) S F	3.1 F	3.2 F	3.4 F	2.9	3.0	3.4	(3.4) S	3.5	3.5	3.3	3.3	3.4	3.3 F	3.3 F	3.4 F	3.2 F	2.9	3.1	3.0	2.8	(2.9) S
18	3.0 F	3.1 F	2.9 F	3.1 F	3.0 F	3.0 F	3.1 F	3.2 F	3.4 F	(3.5) S F	(3.6) S	3.4 F	3.2	3.4	3.3	3.2 F	3.3	(3.4) S	3.1 F	3.1	3.0	2.9	2.7	2.8
19	2.8	3.0 F	2.8 F	2.8 F	2.8	2.8 F	2.8 F Z	3.1	3.4	3.5	(3.3) S	3.3	3.3	3.2 H	3.0 Z	3.2	(3.3) S	3.1	3.2	3.2	3.2	A	(2.8) S	3.0
20	2.8	3.0	3.1	3.1 F	2.9 F	3.0 F	3.0 F	3.0 F	(3.4) S	(3.5) J S	3.4	3.3 V H	(3.3) S H	3.4 H	3.3 Z	(3.1) S	3.0	(3.4) S	3.2 F	(3.1) S F	3.3 F	2.9 F	3.1 F	3.0 F
21	(2.7) J F	K(3.0) S F	3.0 F K	(3.0) F K	3.0 F K	3.2 F K	3.0 F K	3.2 F K	3.6 K	(3.4) H K	3.4 K	3.4 K	3.3 K	3.4 Z K	3.5 K	(3.1) S K	(3.4) S K	K(3.5) A S	2.8 K	A K	3.2 K	A K	(2.8) S K	A K
22	A K	3.0 K	K(3.1) A F	3.1 F K	A	3.4 F	3.0 F	3.1 F	(3.4) Z	3.3	3.2	3.2	(2.8) J F	(3.1) S	3.2	(3.0) S V	(3.2) S	3.1	(3.0) S	(3.0) S	3.0	2.8 F	2.5 B K	3.0 K
23	K(2.7) J S	2.9 F K	2.9 F K	K(3.1) B A	B K	B K	S K	K(3.0) S V	3.5	3.2	3.2	3.0	3.1	3.2	3.2	3.3	(3.3) S	(3.4) S	3.3	(3.0) S	(2.9) S	2.9	A	(2.9) J S
24	(2.9) J S	(2.9) J H	(3.2) J H	2.9	2.9	(3.4) H	2.9 F	(2.9) S H	3.3	3.2 V	3.3 H	3.1	3.0	3.2	3.1	3.2	3.3	(3.3) S	3.2	3.0	2.8 F	(2.8) J S	(3.0) V	(2.9) V F
25	(3.0) V F	(3.1) V F	2.8 F	3.0 F	3.0 F	3.0 F	3.2	(3.0) J S	3.3 F	3.6	3.4	3.2	3.4	3.4	3.0	(3.2) S	3.2	3.2 F	3.2 F	3.2 F	3.0 F	(2.9) J B	2.9	2.8 F
26	2.6 F	2.8 F	3.0 F K	3.2 K	3.0 F K	S B K	B S K	3.0 F	3.3 F	3.4	3.4	3.3	3.3	3.3 F	3.2	(3.3) S	(3.4) S	(3.2) S	(3.3) S	(3.4) S	S	(2.9) F S	2.8	(2.8) J S
27	2.8	3.0 F	3.2 F	3.3 F K	3.4 F K	B S K	B S K	K(3.1) S F	3.7 F	3.5	3.5	3.6	3.3 F Z	3.3	3.2	3.4	3.4	3.3	3.1	3.3	2.7	2.7	2.8	(2.7) A
28	2.9 F	3.1 F	3.0 F	3.2 F	3.3 F	2.9	S	3.1 F	3.5 F	3.4 F	(3.3) F	3.3	(3.2) S	3.2	(3.1) S	3.3	(3.3) S	3.3	(3.3) S	3.1	3.2	A	(2.6) J B	A
29	(2.9) F F	(2.9) F P	2.9 F	3.0 F	(3.0) A	3.1 F	(3.0) A	3.1 F	2.8 F	3.4 F	3.4	3.5	3.3 F	3.2	3.2	3.3	3.3	(3.4) S	(3.3) S F	(3.1) F	3.0 F	2.9 F	2.8 F	2.9 F
30	2.9 F	2.9 F	3.0 F	3.1 F	3.0 F	3.0 F	3.1 F	3.3 F	3.5	3.5	3.4	3.3	3.3	3.1	3.1	3.3 F	(3.3) S	3.3	(3.1) F	3.2 F	3.0 F	(3.0) B	3.0	A
31	(2.8) P	2.8	2.8	2.8	2.9	(3.2) J S	3.2	3.0	3.3	3.3	3.3 V	3.4	3.3	3.2	3.1	3.4	3.3	(3.3) S	3.1	3.2	(2.8) S	(2.8) S	A	2.9
Median	2.8	2.9	3.0	3.0	3.0	3.1	3.0	3.1	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.2	(3.3)	3.3	3.2	3.2	3.1	2.9	2.8	2.9
Count	28	31	31	29	29	28	26	31	29	30	30	29	28	31	31	31	31	31	31	29	29	27	27	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 56

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F1 (Characteristic) , ____ (Unit) December (Month) , 1950

Observed at Washington, D. C.

Lat 38.7°N , Long 77.1°W

National Bureau of Standards (Institution)

Scaled by: B.E.B., By.H. , McC.

75°W Mean Time

Calculated by: By.H., B.E.B., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L	Q								
2										Q	L	L	L	L	L	L								
3										Q	Q	Q	Q	Q	L	L								
4										Q	L	L	L	L	L	Q								
5										Q	Q	M	M	L	L	L								
6										L	L	L	L	L	L	L								
7										L	L	L	L	Q	Q	Q								
8										Q	L	L	L	L	L	Q								
9										Q	L	L	C	L	L	L								
10										Q	Q	L	L	L	L	Q								
11										M	M	M	M	L	L	Q								
12										Q	Q	L	L	L	L[K]	L[K]								
13										Q	Q	L	Q	L	L	Q								
14										Q	Q	Q	L	L	L	L								
15										Q	Q	L	L	L	L	Q								
16										Q	Q	L	A	A	Q	Q								
17										Q	Q	A	A	A	L	Q								
18										Q	Q	A	L	A	A	A								
19										Q	L	L	L	L	L	Q								
20										Q	L	L	A	L	L	Q								
21										Q[K]	Q[K]	L[K]	L[K]	L[K]	L[K]	L[K]								
22										L	L	L	L	L	L	L								
23										Q	Q	Q	L	L	L	L								
24										Q	Q	L	L	L	L	L								
25										Q	Q	L	L	L	L	L								
26										Q	Q	B	L	L	Q	Q								
27										Q	Q	L	L	L	L	Q								
28										Q	L	L	L	L	L	Q								
29										Q	L	L	B	L	L	Q								
30										Q	Q	L	L	L	L	L								
31										A	A	L	L	L	L	L	L							
Median										—	—	—	—	—	—	—	—							
Count																								

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 57

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1948

IONOSPHERIC DATA

(M1500)E (Characteristic), ____ (Unit), December (Month), 1950

Observed at Washington, D.C.

Lat 38.7°N, Lang 77.1°W

National Bureau of Standards (Institution)

Scaled by: B.E.B., By.H., McC.

Calculated by: By.H., B.E.B., McC.

75°W Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									4.3	4.1	4.1	4.0	(4.0)B	4.0	4.0	4.1	4.2							
2									(4.0)S	(4.1)S	4.1	4.1	4.1	(4.2)S	4.1	(4.0)S	S							
3									(3.9)S	(3.9)S	4.1	4.1	4.0	4.1	4.2	4.2	3.9							
4									3.9	A	4.3	A	A	4.2	3.8	A	(4.0)S							
5									S	4.0	4.0	M	M	4.2	4.2	A	A							
6									A	(4.0)S	4.1	4.2	4.3	A	4.2	(4.0)S	B							
7									3.7	4.1	(4.1)A	B	4.2	4.1	4.0	4.3	A							
8									(3.8)S	(3.9)S	3.8	4.0	4.0	4.0	(4.1)S	A	A							
9									A	(3.8)S	(3.9)S	4.1	C	4.1	4.0	A	A							
10									(3.9)S	4.2	A	A	(4.2)S	4.1	4.1	(4.3)S	A							
11									(3.7)S	M	M	M	M	4.2	4.2	(4.1)S	S							
12									(4.0)S	(4.1)S	3.9	4.1	4.1	4.1	4.1K	4.2K	3.6HK							
13									A	4.2	4.4	4.2	4.2	4.2	(4.2)S	(4.1)B								
14									(4.1)A	4.2	(4.2)S	4.1	4.1	4.1	4.2	4.1	3.7							
15									3.5H	(3.6)S	4.0	A	4.0	4.1	4.2	B								
16									(3.9)H	3.9	(4.0)H	4.0	4.0	4.1	4.2	4.3								
17									A	(3.8)S	A	4.0	4.1	A	A	A								
18									(3.6)S	(3.8)S	4.3	4.2	(4.1)A	A	A	A	A							
19										S	4.3	4.1	(3.8)S	3.9	A	A	A							
20										4.1	(4.1)S	(4.2)S	A	(4.1)S	3.8H	4.2	B							
21									S K	A K	4.3K	B K	4.2K	4.2K	4.3K	(4.3)AK	A K							
22										A	4.0	4.1	(3.9)S	(3.9)S	(4.0)S	A								
23										4.1S	(4.1)S	4.2	(4.1)S	(4.2)S	(4.3)S	S								
24									S	S	A	B	(4.2)S	4.1	4.1	A								
25										B	B	B	4.3	4.1	4.3	S								
26										B	B	B	S	S	S	S	S							
27										B	B	B	S	B	B	A								
28										B	A	B	S	S	S	S								
29										A	B	B	B	S	S	B								
30										B	B	B	B	B	B	B	S							
31									A	A	A	B	B	B	B	B	B							
Median									(3.9)	4.0	4.1	4.1	4.1	4.1	4.2	4.2	3.9							
Count									13	18	20	16	20	22	22	13	5							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Table 58

Ionospheric Storminess at Washington, D. C.

December 1950

Day	Ionospheric character* 00-12 GCT	12-24 GCT	Principal storms Beginning GCT	End GCT	Geomagnetic character** 00-12 GCT	12-24 GCT
1	3	2			2	1
2	1	1			3	3
3	2	2			2	2
4	2	2			1	1
5	2	2			2	2
6	2	2			3	2
7	2	1			3	2
8	3	1			2	2
9	2	2			2	1
10	1	1			2	1
11	2	1			2	1
12	2	4	1900	----	3	4
13	4	3	----	1200	4	3
14	3	3			3	4
15	3	0			2	2
16	1	2			3	2
17	3	2			2	2
18	2	2			2	2
19	2	2			3	2
20	1	2			2	3
21	4	4	0600	----	1	1
22	4	2	----	1100	2	4
23	4	2	0300	1300	5	3
24	2	1			4	4
25	2	1			4	3
26	4	0	0700	1200	5	3
27	4	2	0800	1300	4	3
28	3	2			3	2
29	2	2			3	1
30	2	3			2	2
31	2	3			2	1

* Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

** Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

---- Dashes indicate continuing storm.

Table 59

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and Forecasts)
November 1950

Day	North Atlantic quality figure	CRPL* Warning	CRPL Forecasts (J-reports)	North Pacific quality figure	Geomagnetic K_{Ch}
	Half day GCT (1) (2)	Half day GCT (1) (2)		Half day GCT (1) (2)	Half day GCT (1) (2)
1	(2) (3)	W W	X	(2) (2)	(5) (4)
2	(2) (4)	W W	X	(3) (4)	(4) 2
3	(3) 5	U		(4) (4)	3 1
4	(3) (3)	U		(3) (3)	(5) 2
5	(2) 5	U U		(2) (4)	3 2
6	(4) 5	U		(3) 5	2 1
7	5 6			(4) 5	1 0
8	6 7			(4) 5	2 1
9	6 6			5 5	2 1
10	5 5	W	X	5 (4)	(4) 3
11	(4) 5	W U	X	(4) 5	(4) 3
12	(4) 5	U U	X	5 (4)	(4) 3
13	(4) 5	U U		(4) 5	(4) 3
14	(4) (4)			(3) (4)	2 2
15	6 6			5 6	1 1
16	6 6			6 5	1 2
17	5 6			5 6	2 3
18	6 6			(4) 5	1 3
19	5 7			(4) 6	2 1
20	5 6			5 5	1 1
21	6 6			(4) 5	0 1
22	6 6			(4) (4)	1 (4)
23	5 5	U (U)		(3) 5	1 1
24	5 6		X	(4) 5	1 3
25	(3) (3)	W W	X	(3) (4)	(5) (4)
26	(3) (3)	W W	X	(3) (3)	(6) (4)
27	(1) (3)	W W	X	(3) (4)	(5) (4)
28	(2) (3)	W W	X	(3) (4)	(5) (4)
29	(2) (3)	W W	X	(3) 5	3 3
30	(3) (4)	W W	X	(3) 6	3 2

Score:	Warning N.A.	Warning N.P.	Forecast N.A.	Forecast N.P.
H	26	24	18	18
(M)	3	4	0	0
M	3	12	8	18
G	27	18	28	18
O	1	2	6	6

Scales:
Quality Figures
(1)- Useless
(2)- Very poor
(3)- Poor
(4)- Poor to fair
5 - Fair
6 - Fair to good
7 - Good
8 - Very good
9 - Excellent

Geomagnetic K_{Ch} - 0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis.

Symbols:
W Disturbed conditions expected

U Unstable conditions expected

N No disturbance expected

X Probable disturbed date

Scoring:
H Storm ($Q \leq 4$) hit

(M) Storm severer than predicted

M Storm missed

G Good day forecast

O Overwarning

Scoring by half day according to following table:

	Quality Figure ≤ 3	4	5	≥ 6
W	H	H	O	O
U	(M)	H	H	O
N	M	M	G	G
X	H	H	O	O

*Broadcast on WWV, Washington, D.C. Times of warnings recorded to nearest half day as broadcast.
( ) broadcast for one-quarter day. Blanks signify N.

Table 60a

Coronal observations at Climax, Colorado (5303A), east limb

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																					
Dec. 6.7	-	-	-	-	-	3	3	5	5	5	3	5	8	10	15	15	12	12	10		8	10	12	10	3	-	-	-	-	-	-	-	-	-	-	-	-	-
9.9a	-	-	-	-	-	-	3	3	5	5	5	5	5	5	5	5	5	5	3		3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	X
11.7	-	-	-	-	-	3	3	5	5	3	3	3	5	5	8	10	15	10	5		3	3	10	8	5	5	3	3	3	3	3	3	-	-	-	-	-	-
12.9	X	X	X	X	-	-	-	-	-	-	3	3	5	8	8	5	5	3	3		3	-	-	3	2	2	2	2	2	2	-	-	-	-	-	-	-	X
13.8	-	-	-	-	-	-	-	-	-	-	-	2	2	2	10	8	2	2	-		-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	3	3	3	5	5	8	9	5	5	5		8	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.8	-	-	-	-	-	-	-	-	-	3	8	10	8	8	8	8	8	10	10		12	15	20	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.9	-	-	-	-	-	-	-	-	-	3	5	5	3	3	5	8	8	5	8		10	12	12	15	10	3	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	3	8	8	5	5	8	12	12	12	10		12	12	12	10	10	5	3	3	3	3	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	3	3	3	3	3	5	20	15	15	15		8	12	8	5	5	3	3	3	3	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	-	-	-	-	3	8	12	15	15	15	18		12	12	12	10	10	5	3	3	3	3	3	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	5	8	10	12	15	15	15	12		12	15	12	8	8	5	5	3	3	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	3	5	10	12	25	20	15	15	10		12	15	25	20	15	10	10	8	5	3	-	-	-	-	-	-	-	-

Note: on Nov. 12.7 - - Intensity of yellow line (5694A) is 2 at S15, east limb.

Table 61a

Coronal observations at Climax, Colorado (6374A), east limb

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																					
Dec. 6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	8	12	3		5	5	5	3	5	8	5	3	3	5	5	3	3	3	3	3	3	-
9.9a	3	3	3	3	3	3	3	3	2	2	2	3	3	5	8	8	8	5	3		3	3	3	3	2	2	2	2	3	3	3	3	3	2	2	2	2	X
11.7	3	5	5	3	3	3	5	3	2	2	3	3	3	3	5	3	15	5	3		3	8	10	12	20	3	-	-	2	5	3	3	3	3	3	3	3	3
12.9	X	X	X	X	3	3	3	3	2	2	3	3	3	3	10	10	8	5	8		5	8	5	10	10	3	2	3	3	5	5	5	5	3	3	3	3	X
13.8	3	3	3	3	3	3	3	3	3	3	3	3	3	3	15	10	8	5	5		3	5	5	5	5	5	3	3	3	5	5	5	5	3	3	3	3	2
17.7	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	3	3	5		3	12	10	10	8	8	3	3	3	3	3	3	3	-	-	-	3	3
19.8	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3		12	25	8	15	15	5	-	-	-	-	-	-	-	-	3	3	3	
21.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3		5	10	8	12	8	3	3	3	-	-	-	-	-	-	-	-	-	-
22.7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		3	8	8	15	15	12	3	3	5	5	5	3	3	3	3	2	2	
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	12	5		3	5	10	5	8	3	3	3	3	3	3	3	3	3	-	-	-	
25.8	3	3	3	3	3	3	3	3	5	5	3	3	3	3	3	8	15	20	8		3	3	10	3	8	8	8	10	8	5	5	3	3	3	-	-	3	3
26.7	-	-	-	-	-	-	3	3	3	3	3	3	3	15	17	10	5	5	3		3	3	2	2	3	3	3	8	8	3	3	3	3	3	3	2	2	2
27.7	3	5	3	3	3	3	3	3	3	3	5	3	5	15	25	15	3	5	3		3	2	3	-	-	3	5	5	8	3	3	3	2	3	3	3	3	3

Table 60b

Coronal observations at Climax, Colorado (5303A), west limb

Date	Degrees south of the solar equator																			0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Dec. 6.7a	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	5	8	12	10		8	10	10	10	12	10	5	5	5	5	5	3	3	-	-	-	-	-
9.9a	X	X	X	X	-	-	-	-	-	3	3	3	3	5	5	8	8	8	10		10	12	15	15	12	3	3	5	5	5	3	-	-	-	-	-	-	-	-
11.7	-	-	-	-	3	3	3	3	3	3	5	8	8	10	12	15	15	12	12		12	15	12	15	17	10	5	3	3	3	3	-	-	-	-	-	-	-
12.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13.8	-	-	-	-	-	-	-	-	3	3	5	8	8	8	15	12	15	10	10		8	10	17	12	10	5	5	3	3	3	3	3	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	3	3	3	3	5	8	10	15	12	5		8	10	15	20	25	20	12	10	8	8	5	5	5	3	3	3	-	-
19.8	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5	5		5	8	12	15	25	17	5	5	3	3	3	3	3	3	-	-	-	-
21.9	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	3	3	8		10	10	10	12	10	8	5	5	5	5	5	5	3	3	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3		5	8	8	8	10	8	5	3	3	3	5	5	3	3	3	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	5	5		5	10	10	10	8	8	8	8	5	5	5	5	5	3	-	-	-	-
25.8	-	-	-	-	-	-	-	-	-	3	3	5	5	5	10	8	3	3	5		5	5	8	8	5	5	5	5	3	3	3	3	3	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3		3	5	5	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-
27.7	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		3	5	5	3	2	2	3	3	3	3	3	-	-	-	-	-	-	-

Table 61b

Coronal observations at Climax, Colorado (6374A), west limb

Date	Degrees south of the solar equator																			0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Dec. 6.7a	-	-	-	-	-	-	-	-	3	3	3	3	3	3	8	13	10	12	15		3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.9a	X	X	X	X	3	3	3	3	3	3	3	3	3	3	5	12	20	12	5		-	5	3	3	3	-	-	-	-	-	-	-	-	-	3	3	3	3
11.7	3	3	3	3	3	3	3	3	8	8	8	3	5	3	5	8	3	3	3		3	5	5	5	8	3	5	3	3	5	3	3	2	3	3	3	3	3
12.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13.8	2	2	2	2	2	2	2	2	2	3	5	3	-	-	5	5	10	3	3		-	5	18	5	3	3	2	3	3	3	3	2	2	3	3	3	3	3
17.7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	8	15	8	3		8	10	10	12	10	5	2	2	2	2	3	3	8	3	3	3	3	3
19.8	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	5	3	3		5	3	12	15	12	5	-	-	-	-	-	-	-	-	3	3	3	3
21.9	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3		5	3	3	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-
22.7	2	2	2	2	2	2	2	2	2	3	3	3	3	3	5	5	5	3	3		3	3	5	3	3	2	2	2	2	2	2	2	2	2	3	3	3	3
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
25.8	3	3	3	3	3	3	3	3	5	3	3	3	3	2	2	3	3	3	8		3	3	3	8	3	3	-	-	-	-	-	-	-	-	-	-	3	3
26.7	2	2	2	2	2	3	5	5	-	-	3	5	3	3	3	5	5	3	8		5	3	3	2	2	2	2	2	2	2	3	3	3	-	-	-	-	-
27.7	3	3	3	3	3	3	8	5	-	-	5	3	3	5	5	8	8	5	5		5	5	5	3	3	3	3	3	3	3	2	2	3	3	3	3	3	3

Table 62a

Coronal observations at Climax, Colorado (6702A), east limb

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Dec. 6.7	-	-	-	-	-	-	-	-	-	2	2	3	3	5	8	5	5	3		2	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
9.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-		-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
12.9	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	X
13.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2		2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
21.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2		2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3		3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	2		2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2		3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	2	-		-	2	3	5	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-

Table 63a

Coronal observations at Sacramento Peak, New Mexico (5303A), east limb

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Dec. 2.8	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5		5	5	12	15	15	12	5	5	-	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	-	-	-	-	3	3	3	5	8	12	17	15	15	12		12	8	10	17	28	12	8	8	5	3	3	-	-	-	-	-	-	-	-	-
4.9	-	-	-	-	-	-	-	-	5	5	5	8	8	10	15	15	15	8		8	8	8	10	15	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
*6.7	-	-	-	-	-	-	3	8	8	10	8	8	10	12	20	28	25	15		15	15	15	15	15	10	5	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	3	3	3	8	10	10	8	5	8	10	15	25	20	13		15	12	12	12	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-
8.9	-	-	-	-	-	-	-	3	3	3	5	8	10	12	15	15	12	12		10	8	8	5	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	3	3	8	3	5	8	12	12	12	12	10		8	8	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	3	3	8	8	5	5	8	8	10	12	12	15		10	5	5	5	5	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-
11.9	-	-	-	-	-	3	3	5	8	3	3	3	5	5	8	10	15	18		8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	2	3	3	2	3	3	3	8	5	8	8	5		3	2	3	3	8	3	3	5	3	3	3	3	3	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	2	2	2	2	2	3	3	3	5	15	3	2		2	2	2	3	3	3	3	3	3	3	3	3	3	X	X	X	X	X	X	X
14.9	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	3	-		-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3		3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5	5	3		3	5	5	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-
17.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	3	5	3	8	10	10	12	10	8		10	12	15	13	5	3	3	3	5	3	3	3	3	3	-	-	-	-	-	-
19.8	-	-	-	-	-	-	-	3	3	3	8	10	10	10	13	12	12	12		15	15	20	31	10	8	3	3	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	3	3	5	8	3	5	10	10	12	12		10	12	15	20	17	10	3	3	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	3	8	10	8	8	10	12	12	12	10		10	12	15	20	22	17	10	3	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	3	8	10	10	5	8	12	20	15	12		12	12	15	12	12	13	10	8	5	3	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	3	3	5	5	8	12	22	12	12		15	8	8	12	8	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	3	5	8	8	5	5	10	33	28	20	22		33	20	17	28	12	12	10	8	8	5	3	3	-	-	-	-	-	-	-	-
25.7	-	-	-	-	3	3	3	5	5	5	3	3	5	12	22	25	22	33		38	25	15	20	15	12	8	8	5	3	3	3	3	3	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	10	12	13	22	15	20		17	15	12	12	17	12	8	5	5	5	3	3	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	12	17	12		10	10	10	12	15	12	8	8	8	8	5	3	3	-	-	-	-	-	-	-
30.7	-	-	-	-	3	3	5	5	8	8	8	10	10	25	25	17	12	10		8	12	20	18	22	10	8	8	5	3	3	3	-	-	-	-	-	-	-	-

*Note: Dec. 6.7 — Intensity of yellow line (5694A) is 3 at N10, east limb.

Table 62b

Coronal observations at Climax, Colorado, (6702A), west limb

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Dec. 6.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3		3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.9a	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2		2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
12.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13.8	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	2		2	2	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2		2	2	2	3	3	3	3	3	3	2	2	2	-	-	-	-	-	-	-
19.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	3	3	3	3	5	5	5	3	-	-	-	-	-	-	-	-	-	-
21.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 63b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Dec. 2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	3	3	5	5	5	5	8	8	5	5	8	8	13	12		12	12	8	8	12	12	12	8	8	5	5	3	-	-	-	-	-	-	-
4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	8		10	10	8	5	5	5	5	5	5	2	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	5	5	8	8	15	25	35		38	31	15	15	15	17	17	15	8	8	15	12	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	3	12	15	31	25	33		20	15	18	15	15	15	15	12	8	10	12	12	-	-	-	-	-	-	-
8.9a	-	-	-	-	-	-	-	-	-	-	-	3	3	5	12	17	25	15		14	12	12	12	15	15	12	10	8	8	10	10	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	3	3	5	10	15	12	12	12		12	12	17	17	25	25	15	8	5	8	8	5	3	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	10	10	12		12	12	15	20	28	20	12	8	5	8	8	8	3	-	-	-	-	-	-
11.9	-	-	-	-	-	-	-	-	-	3	3	5	5	8	10	15	13	13		12	10	10	12	12	13	12	5	3	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	3	3	5	10	8	12	17	15	13		10	12	13	15	12	13	12	5	3	-	-	-	-	-	-	-	-	-	-
13.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-
14.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	3	3	3	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	3	5	8	12	18	28	35	28	20		15	12	12	15	28	25	15	8	8	8	8	8	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	3	5	8	10	13	20	25	20		12	10	10	18	25	28	15	12	10	10	10	8	8	5	3	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	17	12		14	8	10	15	20	18	15	13	12	12	10	8	8	X	X	X	X	X	X
18.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	12	12	10		10	5	12	35	38	28	18	15	13	13	13	12	13	3	3	3	-	-	-
19.8	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	10	12		10	10	12	35	31	25	15	15	10	10	10	12	12	5	3	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	10	12		8	12	15	17	33	28	18	12	12	8	8	10	10	10	3	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	8	8	8		8	8	12	15	20	22	15	12	10	10	10	12	12	10	3	3	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	5	5	5		3	3	5	12	12	15	13	12	8	8	8	8	5	5	3	3	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	3	5	8	5	5	5	5	3	3	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	3	3	3	5	8	8	10	3	-		3	5	8	12	12	10	8	8	8	8	8	8	5	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	3	5	5	5	5	5	3	3		-	3	8	8	10	5	3	5	5	5	5	5	8	8	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3		3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	3	3	3	3	3	3	-	-	-	-	3	3	5	8	12		10	10	10	10	5	5	5	5	3	3	3	3	3	3	-	-	-	-	-

Table 64a

Coronal observations at Sacramento Peak, New Mexico (6374A), east limb

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																					
Dec. 2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	5	5	-	-	-	-	-	-	-	-	-	-	-	-
3.7	3	3	-	-	-	-	-	-	-	3	3	3	-	-	-	3	3	3	3	3	5	8	5	3	3	-	-	-	3	3	3	3	3	3	3	3	3
4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	8	3	3	8	5	5	3	3	3	3	3	-	-	-	-	-	-	-	-	-
6.7	3	3	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	10	3	8	3	3	5	5	3	3	5	5	5	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	12	8	5	3	3	3	3	5	2	3	3	3	2	2	-	-	-	-	-	-	-	-
8.9	-	-	-	-	-	2	2	2	3	3	2	2	2	3	5	5	10	5	3	3	3	2	2	2	2	2	3	3	3	3	2	-	-	-	-	-	-	-
9.8	2	2	2	-	-	-	-	-	-	-	-	2	2	2	3	3	8	5	5	2	2	2	2	2	2	2	2	3	3	5	2	2	2	-	-	-	-	-
10.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	10	12	2	5	5	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11.9	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	12	2	2	2	5	10	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12.7	-	2	2	2	2	2	2	2	2	2	2	2	2	2	3	8	8	5	3	3	8	8	10	2	2	-	-	2	5	3	3	3	2	2	2	2	2	2
13.7	2	2	2	2	2	2	2	2	2	2	2	3	3	3	8	12	8	3	5	5	5	5	3	5	3	3	2	2	3	5	X	X	X	X	X	X	X	X
14.9	-	-	-	-	-	-	-	3	3	3	3	3	3	5	8	5	3	3	3	3	3	3	5	3	3	3	3	3	3	-	-	X	X	X	X	X	X	X
15.8	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	5	5	3	3	3	5	3	3	5	3	3	3	3	3	3	3	3	2	2	2	2	2	2
16.7	2	2	2	3	-	-	-	3	3	5	3	3	3	3	3	3	3	5	3	5	5	8	5	3	5	3	3	3	3	3	-	-	-	-	-	-	-	-
17.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	3	3	3	3	3	2	2	2
18.7	2	2	2	2	2	2	2	3	3	3	2	2	2	-	-	-	-	-	3	8	15	12	10	5	3	3	3	3	2	2	2	2	2	2	2	2	2	2
19.8	2	2	2	2	3	3	3	3	3	2	2	2	2	-	-	2	2	2	2	10	15	15	20	10	3	2	3	3	3	3	2	2	2	2	2	2	2	2
20.7	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	2	2	2	8	13	8	5	17	12	3	3	2	2	2	2	2	-	-	-	-	-	-
21.7	2	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	2	3	3	12	10	3	3	3	3	3	2	2	2	2	2	-	-	-
22.7	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	2	2	2	3	3	5	3	10	12	2	2	2	2	2	2	2	2	2	3	2	2	2
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	8	5	3	3	5	2	2	-	-	-	-	-	-	-	-	-	-	-	-
24.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	12	20	8	3	8	5	5	3	3	3	3	3	3	2	2	2	2	2	2	2	2
25.7	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	12	20	12	5	2	8	5	2	2	3	3	3	3	3	3	3	2	2	2	2	2	2
26.7	-	-	3	2	3	2	2	2	2	2	2	3	3	3	3	5	15	15	5	2	2	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	12	5	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	3	3	3	3	3	3	3	3	3	3	3	3	3	5	12	12	8	3	3	12	10	10	-	-	-	2	3	3	3	3	3	-	-	-	-	-	-

Table 65a

Coronal observations at Sacramento Peak, New Mexico (6702A), east limb

Date GCT	Degrees north of the solar equator																			0°	Degrees south of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																					
Dec. 2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
4.9	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	2	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.9	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X
14.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
15.8	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
19.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	2	2	2	2	2	2	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.9	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 64b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Dec. 2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	8	5	5	5		3	3	5	3	3	3	2	3	3	3	3	3	2	-	-	-	3	3
4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	3	3	3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	3	3	3	3	3	3	3	3	3	3	3	5	10	15	12	20		3	3	-	3	3	-	-	-	-	3	3	3	3	3	3	3	3	3
7.6	-	-	2	2	2	2	2	2	2	2	2	2	2	2	3	15	10	10	12		8	2	2	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-
8.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	12	18	12	5	3		2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	2	2	2	2	2	2	3	3	12	15	8	3	2		5	2	8	8	8	-	-	2	2	2	2	2	2	2	2	2	2	2
10.7	2	2	2	2	2	2	2	2	2	2	2	2	3	5	8	3	3	2	2		2	2	5	5	12	2	2	2	2	2	2	2	2	2	2	2	2	2
11.9	2	2	2	2	2	2	2	2	2	2	3	5	3	2	2	3	3	2	2		2	2	3	3	2	2	2	2	2	3	3	2	2	2	2	2	2	2
12.7	2	2	2	2	-	-	-	-	-	3	5	5	2	-	-	-	8	-	-		-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-
13.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	2	2	2	2	2	2	2	2	2
14.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-
15.8	2	2	2	2	2	2	2	-	-	2	2	2	-	-	-	5	12	8	12		3	8	12	12	13	3	3	3	3	3	3	3	2	2	2	2	2	2
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	15	10	12	3		3	10	10	12	8	3	3	3	3	3	3	2	2	2	2	2	2	2
17.7	2	2	2	-	-	-	-	-	-	-	-	-	2	3	2	3	10	8	10		-	8	3	5	8	3	-	-	-	-	-	-	X	X	X	X	X	X
18.7	2	2	2	2	2	2	-	-	-	-	-	2	3	3	3	5	10	8	5		5	15	10	8	3	-	-	-	-	3	3	5	3	2	2	2	2	2
19.8	2	2	2	2	2	-	-	-	-	-	-	2	2	3	5	5	5	3	3		3	10	15	10	8	-	-	-	2	2	3	3	3	2	2	2	2	2
20.7	-	-	-	-	-	-	-	-	-	2	2	2	2	5	5	3	-	3	3		5	5	12	15	3	-	-	-	-	2	2	2	2	2	-	-	-	-
21.7	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	3	2	2	3		3	3	10	10	3	-	-	-	2	3	2	2	2	2	2	2	2	2
22.7	2	2	2	2	2	2	2	2	2	2	2	3	3	3	5	5	3	3	3		3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	2	2		2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		2	2	2	2	-	-	-	-	-	-	-	-	-	2	2	2	2	2
25.7	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	5	3	5	5		5	3	2	2	2	-	-	-	-	2	2	2	2	2	2	2	2	3
26.7	-	-	-	-	-	-	-	5	3	3	2	3	3	3	3	3	3	3	3		3	3	3	5	2	2	-	-	-	-	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	3	3	-	-	-	-	-	-	-	-	2	3	2	-	-
30.7	-	-	-	2	2	2	2	3	3	2	2	3	3	3	5	5	5	3	2		8	3	3	3	2	2	2	2	2	3	3	2	3	3	2	2	-	-

Table 65b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1950																																						
Dec. 2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5		3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2		2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
11.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	2		2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-
14.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	2	2	2	3	3	3	3	3	3	3	3	2		2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	2		2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
17.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2		2	2	2	2	2	2	2	-	-	-	-	-	X	X	X	X	X	X
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2		2	2	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-
19.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2		2	3	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-
20.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2		2	2	2	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2	2	3	3	3	3	2	2	2	2	2	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2		2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	2	2	2		2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 66

Particulars of Observations, Climax, Colorado
July--December 1950

Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1950								
Jul. 1.6	13	12	15	12	12	13	D	S
3.6	13	13	12	13	12	12	D	S
4.7	14	14	15	15	15	-	A	S
5.7	>15	>15	>15	-	>15	-	D	S
6.6	12	12	13	12	12	12	A	S
9.9	>15	>15	>15	15	>15	-	D	S
10.6	8	9	7	7	7	7	A	S
11.7	-	7	-	-	-	-	D	S
12.6	4	5	3	4	3	3	A	S
13.6	5	5	4	4	5	6	At/D	S
14.7	12	8	13	12	11	15	D/At	S
15.8	10	12	-	-	-	-	A	S
16.7	14	12	14	12	14	15	At/A	S
17.6	-	9	-	-	-	-	At	S
18.6	6	8	8	9	8	8	D	S
19.6	13	9	10	10	10	9	A	S
20.8	>15	>15	15	>15	>15	>15	D	S
21.6	14	13	13	13	12	12	At	S
22.6	12	12	12	12	13	12	D	S
23.8	15	14	15	14	14	15	At	S
24.6	15	13	12	14	12	13	D	S
25.6	14	14	13	13	13	13	A	S
26.6	14	14	13	13	13	13	D/A	S
27.6	12	13	13	-	>15	>15	At/A	S
28.7	8	9	8	8	9	8	D	S
29.6	9	8	9	11	9	8	At/D	S
30.8	>15	>15	>15	12	>15	>15	A	S
31.7	9	8	8	10	10	10	At	S
Aug. 1.6	8	8	7	7	7	7	A	Ro
2.6	11	10	8	9	8	10	At	Ro
3.8	7	6	7	10	6	10	A	Ro
4.7	11	11	11	11	9	10	A/D	Ro
7.6	9	8	7	8	8	8	A	Ro
8.6	6	7	7	7	6	6	D	Ro
9.6	6	6	6	7	8	7	At	Ro
10.6	6	6	6	6	6	6	D	Ro
12.6	3	5	3	>15	5	6	D	Ro
13.6	3	4	3	4	4	4	At	Ro
14.6	5	4	5	6	5	5	A	Ro
Aug. 15.6	12	12	11	10	11	11	At	Ro
16.7	7	7	7	-	9	9	A	Ro
17.6	13	14	13	12	12	11	At	Ro
18.6	11	10	8	9	10	7	A	Ro
19.7	11	14	15	-	>15	-	At	Ro
20.7	11	>15	>15	11	11	10	A	Ro
21.7	6	7	8	10	7	6	At	Ro
22.6	13	11	12	13	13	13	A	Ro
23.6	15	11	11	13	13	15	At	Ro
24.8	-	8	-	-	-	-	A	Ro
27.8	7	6	7	6	5	5	At	Ro
29.6	7	7	7	6	7	8	A	Ro
30.6	7	7	7	5	8	6	D	Ro
31.7	12	11	10	12	11	11	At	Ro
Sep. 1.6	13	11	11	12	10	10	A	E
2.6	6	2	2	10	8	4	D	E
3.6	3	4	4	3	3	3	A	E
5.6	3	2	3	8	3	5	D	E
6.6	11	10	10	10	9	9	At	E
7.6	9	9	7	8	8	8	D	E
8.6	7	6	6	6	6	7	A	E
9.8	3	4	4	3	3	4	At	E
10.6	-	3	3	-	-	-	D	E
11.7	4	4	4	3	4	4	A	E
12.8	7	10	5	6	4	9	At/A	E
13.8	4	5	5	-	7	-	D	E
14.9	-	5	-	-	-	-	A	E
15.6	-	7	7	-	-	-	At	E
16.6	6	7	10	7	6	7	At	E
17.7	9	9	9	10	11	11	D	E
18.6	6	6	5	5	5	6	At	E
19.7	5	5	4	4	4	7	A	E
20.6	5	5	5	-	6	-	D	E
21.6	11	6	6	-	12	12	At	E
23.0	-	8	15	-	-	-	A	E
23.8	-	6	-	-	-	-	D	E
24.6	6	6	5	6	5	6	A	E
25.8	4	3	4	5	7	9	D	E
26.7	-	6	6	-	-	-	At	E

Table 66 (continued)

Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.	Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1950									1950								
Sep.27.7	8	9	8	10	7	9	A	E	Oct.29.8	8	7	8	8	9	10	A	W
29.6	9	9	10	10	10	10	At	E	30.9	-	-	-	-	13	-	At	W
30.7	10	10	9	11	11	10	A	E	31.6	13	13	13	12	12	11	D	W
Oct. 2.6	6	5	5	5	5	6	D	W	Nov. 3.7	12	8	9	9	8	9	At	W
3.7	7	7	7	7	7	7	At	W	4.8	7	10	7	10	8	9	A	W
4.7	6	6	6	6	6	6	A	W	5.8	9	10	9	10	9	9	At	W
5.6	11	12	9	13	11	10	D	W	10.7	11	9	11	11	11	11	D	W
7.8	-	15	15	-	-	-	At	W	12.7	11	5	6	7	9	6	A	W
8.7	5	3	4	5	5	5	D	W	13.8	-	8	9	-	-	-	D	W
9.6	11	10	11	12	10	10	A	W	16.9	5	5	5	6	6	6	At	W
10.6	8	7	8	8	11	9	At	W	22.7	>15	9	7	7	9	9	D	W
11.7	11	15	11	11	11	9	D	W	25.7	3	2	4	3	7	5	A	W
12.8	8	7	6	5	7	3	A	W	27.7	2	4	3	2	3	3	At	W
13.7	9	9	12	6	9	8	At	W	28.8	7	3	7	-	-	-	D	W
14.6	5	4	4	4	4	4	A	W	Dec. 6.7	12	5	5	9	11	8	A	W
15.7	6	7	6	9	6	-	A	W	9.9	8	7	11	-	6	9	A	W
16.6	2	3	3	3	2	2	D	W	11.7	5	4	4	5	5	5	At	W
17.7	7	7	5	8	7	7	At/D	W	12.9	-	8	9	-	-	-	A	W
18.9	11	10	8	11	14	13	D	W	13.8	7	7	8	8	5	6	At	W
19.7	5	5	5	5	5	6	A	W	17.7	11	8	13	5	6	5	A/D	W
20.6	6	6	6	6	6	7	At	W	19.8	6	10	15	7	6	14	D	W
21.7	14	8	13	12	13	10	D	W	21.9	10	11	15	13	10	10	At/A	W
22.7	10	12	7	10	10	13	A	W	22.7	4	4	4	4	4	5	A	W
23.7	-	-	11	-	9	13	At	W	23.9	9	10	11	>15	12	11	D	W
24.6	5	4	4	5	5	5	D	W	25.8	6	7	7	6	6	7	A	W
26.8	>15	9	12	-	-	-	At	W	26.7	8	8	5	8	11	6	At	W
27.7	12	10	14	15	14	15	D	W	27.7	3	3	3	4	3	4	D	W

A - Allen
At - Athay
D - Dolder
E - Evans
Ro - Roberts
W - Witte

Table 67

Particulars of Observations, Sacramento Peak, New Mexico

July - December 1950

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1950										
Jul. 2.8	10	9	9	10	8	8	8	11	C	S
3.7	11	10	10	10	12	11	10	10	C	S
8.7	4	3	5	5	5	4	4	4	C	S
13.9	6	4	5	5	7	6	7	6	C	S
14.6	5	5	5	5	5	5	5	5	Ra	S
15.7	7	6	7	7	7	6	6	6	C	S
16.9	6	5	6	6	9	8	7	7	C	S
17.8	10	9	8	9	10	8	8	9	Ra	S
18.7	7	7	7	7	8	8	7	6	Ra	S
19.8	5	5	5	6	-	-	-	-	C	S
20.9	7	7	-	-	-	-	-	-	Ra	S
25.8	5	4	4	-	-	-	-	-	C	S
26.9	8	7	8	8	8	8	9	8	Ra	S
27.6	5	4	6	6	5	5	5	5	C	S
29.6	5	5	6	6	6	5	5	5	Ra	S
Aug. 2.0	8	8	9	9	11	11	-	-	C	Ro
2.7	15	13	14	15	-	-	-	-	C	Ro
3.9	6	5	5	5	5	5	5	5	Ra	Ro
4.9	8	7	7	7	7	9	9	9	Ra	Ro
5.6	4	4	5	5	5	6	6	6	Ra	Ro
6.6	3	3	4	4	6	5	4	7	C	Ro
7.6	5	4	5	4	5	4	4	4	C	Ro
8.8	7	11	12	10	9	9	9	9	C	Ro
9.7	9	8	8	8	9	9	8	8	Ra	Ro
10.7	7	6	6	6	7	6	6	6	C	Ro
11.7	9	8	8	8	9	9	8	8	C	Ro
12.7	9	9	9	8	8	7	7	8	C	Ro
13.7	7	6	6	7	7	7	6	7	C	Ro
14.7	6	5	6	7	-	-	-	-	C	Ro
16.7	5	5	6	7	8	10	10	10	C	Ro
17.6	8	8	8	8	7	8	8	8	C	Ro
18.6	6	6	5	6	6	6	6	5	C	Ro
19.7	8	8	9	9	9	9	9	9	Ra	Ro
20.8	10	10	11	11	10	10	10	10	C	Ro
21.8	15	12	11	11	11	13	12	11	Ra?	Ro
22.9	13	12	13	15	15	13	11	11	C	Ro
23.8	9	9	10	12	12	10	8	8	C	Ro
24.8	10	9	9	9	11	11	10	10	Ra	Ro
26.0	>15	>15	13	13	13	13	12	13	C	Ro

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1950										
Aug. 26.8	11	11	11	11	11	11	11	12	C	Ro
27.7	9	8	9	9	9	9	8	8	C	Ro
28.7	9	8	9	9	10	9	8	9	Ra	Ro
29.7	11	11	11	11	13	12	11	11	Ra	Ro
30.8	12	11	12	11	13	13	12	12	Ra	Ro
31.8	12	11	11	11	12	12	11	10	Ra	Ro
Sep. 1.8	11	9	10	10	12	12	11	13	Ra	E
2.7	8	8	8	9	10	9	9	9	Ra	E
6.0	8	8	8	9	10	10	10	9	Ra	E
7.8	8	8	8	10	11	10	10	9	C	E
8.6	11	10	11	11	11	11	12	11	Ra	E
9.8	8	8	8	8	8	8	9	8	C	E
10.8	6	7	6	6	7	9	9	9	C	E
11.7	7	6	6	6	7	7	6	6	C	E
12.7	7	6	6	7	6	6	7	7	C	E
13.7	4	4	4	5	5	5	5	5	C	E
14.7	5	5	4	5	4	4	4	4	Ra	E
15.7	5	4	5	5	5	5	5	5	Ra	E
16.7	4	3	4	3	4	4	4	3	C	E
17.9	5	5	8	8	8	7	-	-	C	E
18.8	-	-	-	-	4	5	4	4	C	E
19.7	5	5	5	5	5	5	4	4	Ra	E
22.7	6	6	5	6	5	5	5	5	Ra	E
23.8	5	5	6	5	5	5	5	5	Ra	E
24.7	4	4	4	5	4	5	4	4	Ra	E
25.8	6	6	7	7	7	7	7	7	Ra	E
26.7	6	6	6	7	7	7	7	7	Ra	E
27.7	6	6	6	5	7	6	6	6	Ra	E
28.7	6	6	6	6	6	6	6	5	Ra	E
29.7	7	7	7	7	7	8	7	7	Ra	E
Oct. 2.7	5	5	5	5	7	6	6	5	Ra	W
5.8	6	6	9	-	7	7	-	-	Ra	W
6.9	7	6	6	7	9	7	7	6	Ra	W
7.7	8	8	9	9	8	7	7	7	Ra	W
8.7	8	7	7	8	8	8	8	8	Ra	W
9.7	6	6	7	7	7	8	7	7	Ra	W
10.7	7	7	7	8	8	8	7	7	Ra	W
11.7	7	7	7	7	8	8	8	7	Ra	W
12.7	8	7	7	7	7	7	7	7	Ra	W

Table 67 (Continued)

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1950										
Oct. 13.7	7	6	6	7	7	8	7	7	Ra	W
14.8	7	6	7	7	11	11	13	11	Ra	W
15.7	9	8	8	8	11	-	9	9	Ra	W
16.8	8	8	8	8	13	13	13	14	Ra/C	W
18.7	9	9	8	9	10	10	9	9	Ra	W
19.7	10	11	10	11	11	11	10	9	Ra	W
21.7	11	10	10	11	11	11	11	10	Ra	W
22.7	9	9	9	10	10	11	10	10	Ra	W
23.7	10	10	10	11	13	11	11	10	Ra	W
24.6	10	9	10	11	10	10	10	10	Ra	W
25.7	10	10	11	11	11	11	11	10	Ra	W
26.7	10	10	10	10	11	13	11	10	Ra	W
27.9	8	8	9	10	9	9	8	8	C	W
28.7	7	7	11	9	12	9	7	9	Ra	W
29.7	8	7	8	8	9	9	9	8	Ra	W
30.7	7	7	8	8	8	9	8	8	Ra	W
31.6	9	8	8	9	9	9	9	9	Ra	W
Nov. 1.7	9	8	8	9	10	11	11	12	Ra	W
4.8	9	9	9	10	10	10	9	8	Ra	W
5.7	11	10	10	11	12	12	11	11	Ra	W
6.7	11	11	11	11	12	12	12	12	Ra	W
9.7	13	11	12	14	14	13	13	13	Ra	W
11.7	11	11	11	13	12	12	12	11	Ra	W
12.7	11	11	12	12	13	14	12	12	C	W
13.7	12	12	12	13	14	14	13	13	Ra	W
15.7	13	12	13	14	14	15	14	14	Ra	W
16.7	13	11	12	13	13	13	13	12	Ra	W
20.9	14	12	13	14	14	14	13	13	Ra	W
21.9	7	8	7	7	7	8	7	7	C	W
22.7	7	6	6	6	7	7	7	7	Ra	W
23.7	6	7	7	8	8	8	9	9	Ra	W

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1950										
Nov. 25.7	8	7	7	7	9	13	13	13	Ra	W
26.7	8	8	8	8	8	8	8	8	Ra	W
27.7	7	6	7	7	7	8	8	7	Ra	W
28.7	7	7	7	8	7	8	8	7	Ra	W
29.7	7	6	6	7	7	8	7	7	Ra	W
30.7	7	7	7	8	8	8	8	8	Ra	W
Dec. 2.8	13	11	13	11	14	13	11	11	Ra	W
3.7	8	8	8	8	10	8	9	9	Ra	W
4.9	12	13	10	11	12	15	12	>15	H	W
6.7	9	10	10	11	11	11	11	11	Ra	W
7.6	7	7	7	8	7	6	6	7	Ra	W
8.9	8	7	8	9	8	8	8	8	Ra	W
9.8	8	7	8	8	8	8	8	8	Ra	W
10.7	8	8	8	9	8	9	9	9	Ra	W
11.9	7	7	7	8	8	8	8	8	Ra	W
12.7	11	8	8	9	8	9	8	8	Ra	W
13.7	8	6	7	8	-	-	-	-	Ra	W
14.9	5	-	-	5	-	-	-	-	Ra	W
15.8	9	10	8	9	10	10	9	9	Ra	W
16.7	8	8	8	9	8	9	9	9	Ra	W
17.7	12	-	10	10	10	11	9	10	Ra	W
18.7	8	8	8	8	9	8	8	8	Ra	W
19.8	10	9	9	10	11	10	10	10	Ra	W
20.7	9	9	9	10	10	10	10	10	Ra	W
21.7	9	9	9	10	10	10	11	10	Ra	W
22.7	8	8	8	9	9	9	9	10	Ra	W
23.9	12	14	12	12	14	13	13	12	Ra	W
24.7	10	9	9	11	11	11	11	11	Ra	W
25.7	8	8	8	10	9	10	10	10	Ra	W
26.7	10	10	9	10	11	11	10	10	Ra	W
27.9	14	14	15	15	15	>15	>15	15	Ra	W
30.7	9	9	9	11	10	10	10	10	Ra	W

C - Cook
E - Evans
H - Huston
Ra - Ramsey
Ro - Roberts
W - Witte

Table 68

American and Zürich Provisional Relative Sunspot Numbers

December 1950

Date	R_A*	R_Z**	Date	R_A*.	R_Z**
1	137	82	17	25	26
2	129	80	18	19	19
3	128	77	19	7	7
4	113	75	20	3	0
5	89	61	21	3	7
6	68	46	22	3	0
7	120	85	23	4	13
8	134	108	24	37	31
9	151	94	25	43	39
10	148	94	26	68	56
11	156	100	27	57	58
12	129	115	28	39	35
13	113	94	29	35	41
14	91	79	30	27	23
15	59	59	31	28	43
16	43	42	Mean:	71.2	54.5

*Combination of reports from 45 observers; see page 9.

**Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 69

Outstanding Solar Flares, November 1950

erva-y	Date 1950	Time Observed Beginning (GCT)	Time Observed Ending (GCT)	Duration (Min)	Area (Mill) (of) (Visible) (Hemisph)	Position Longitude Diff (Deg)	Position Latitude (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
lder	Nov. 1	1901	1930	--	80	E22	N12	1905	8	6		
	" 3	1515	1625	--	50	E82	N02	1604	12	3		
	" 4	2226	2245	--	100	W35	S07	2226	8	8		
	" 5	2235	2250	--	400	W00	N12	2237	25	4		
	" 7	2115	2145	--	40	W26	N13	2130	10	6		
	" 10	2040	2055	--	700	W08	S12	2046	10	4		
	" 12	1550	1700	--	100	E41	N15	1620	10	8		
	" 13	1906	1930	--	250	E26	N16	1916	8	3		
	" 15	1544	1640	--	250	E01	N16	1603	17	5		
	" 15	1705	1730	25	300	E01	N16	1725	12	5		
	" 15	1751	1810	19	110	E01	N16	1758	10	5		
	" 15	1942	2000	18	50	W21	N18	1945	8	6		
	" 15	2045	2120		300	W01	N16	2054	8	5		
	" 27*	1640	1700	20	100	E44	S16	1651	8	4		
	" 27*	1835	1850	15	80	E43	S16	1843	8	8		
ath	" 28	1510				E33	S17				1-	
	" 28	1530				E69	N15				1-	

The High Altitude Observatory reports that this event has some, but not all, of the typical characteristics of a flare.

Table 70

Indices of Geomagnetic Activity for November 1950

Preliminary values of mean K-indices, Kw, from 55 observatories;
Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1950	Values Kw	Sum	C	Values Kp	Sum	Final Sel. Days
1	3.5 3.7 3.8 4.9 5.1 4.8 4.6 2.9	33.3	1.5	4o5-5o6- 6o5+6-3o	39+	Five
2	3.1 2.2 3.0 2.9 3.0 3.6 0.9 1.1	19.8	0.7	4-3-4+3+ 3+4o1o1-	23o	Quiet
3	2.0 2.5 2.0 2.3 1.3 1.2 1.5 1.8	14.6	0.4	3-3+3o3- 1+1+2-2-	18-	
4	2.1 3.6 4.6 4.3 4.2 5.5 3.0 2.4	29.7	1.5	3-5-6+5+ 5o6o3+2+	36-	6
5	2.8 1.9 1.9 2.6 2.4 1.8 2.4 3.1	18.9	0.5	3+3-3-3+ 3-2o2o3+	22o	7
						15
6	1.7 1.0 1.4 1.6 1.1 1.1 0.8 0.8	9.5	0.0	2o1o2o1+ 1o1o1-1-	10-	19
7	0.8 0.4 0.8 0.4 0.4 0.5 0.9 1.3	5.5	0.0	1-0+1-0+ 0o0+1-1o	4o	20
8	2.4 2.4 0.8 1.8 1.9 2.0 1.8 1.6	14.7	0.3	3o3+0+2o 2-2o2-1+	15+	
9	1.2 2.0 1.5 0.4 0.4 1.4 2.3 2.0	11.2	0.2	1o3-1+0+ 0o2-2+2-	11o	
10	3.0 3.3 4.7 4.4 4.8 4.5 3.9 2.4	31.0	1.5	3+4o6+5o 5+5-4o2+	35o	
11	3.3 2.7 2.9 2.0 2.8 3.1 2.8 3.1	22.7	0.8	4-4-4o2- 3o3+3-3o	25o	Five
12	2.8 2.5 4.1 2.7 3.1 4.2 2.8 4.0	26.2	1.1	3+3o5+3o 3+4+3o4o	29+	Dist.
13	2.9 3.1 3.1 2.9 3.5 3.0 3.6 3.5	25.6	1.0	3+4+4o3+ 4-3+4-4+	30o	
14	2.7 1.7 1.4 1.5 2.1 2.5 2.9 2.4	17.2	0.6	3+2+2-2- 2+3-3-2+	19o	1
15	0.6 0.4 1.1 1.9 1.2 0.3 1.4 2.5	9.4	0.2	0+0o1o2- 1-0o1+2+	7+	4
						25
16	2.0 1.6 0.3 0.8 1.3 1.8 2.6 2.5	12.9	0.3	2o2-0+1- 1-2-2+2+	12-	26
17	2.1 1.7 2.3 2.1 2.3 2.7 3.7 3.0	19.9	0.7	2+2+3o2+ 3-3o4-3+	23-	27
18	0.8 0.8 0.6 2.1 2.7 2.1 4.7 2.3	16.1	0.8	1-0+0+2+ 3o2+5-3-	16+	
19	2.2 2.1 1.3 1.2 0.8 0.7 0.4 0.8	9.5	0.0	3-3-2-1+ 0+0+0+1-	10o	
20	1.0 1.1 1.0 1.1 1.2 1.7 1.4 1.1	9.6	0.0	1o1o1o1+ 1+2-1+1-	9+	Ten
						Quiet
21	0.4 0.2 0.8 0.4 0.7 0.7 2.7 3.0	8.9	0.4	0+0o0+0+ 0+0+3-3+	8-	
22	1.5 1.1 0.9 1.3 2.9 4.6 3.7 5.0	21.0	1.2	2o1o1-1+ 3+5o4o6-	23o	6
23	3.3 0.9 1.1 0.8 1.0 0.7 2.0 2.6	12.4	0.3	4o1o1o1o 1o1o2o3-	14-	7
24	0.9 0.9 0.8 1.1 1.4 3.7 4.1 4.0	16.9	0.9	1o1-1o1o 1+4o4-4o	17-	8
25	5.4 4.3 3.6 4.7 5.4 4.0 3.0 3.5	33.9	1.5	6+5+5-5+ 6o4o3o4-	38+	9
						15
26	4.6 4.3 4.1 5.3 4.9 5.2 5.0 4.0	37.4	1.6	5+6-5+7- 5+5+6-5-	44o	16
27	4.4 4.3 3.9 4.5 4.4 4.2 4.4 3.7	33.8	1.4	5o6-5o5o 5o4+5-4o	39-	19
28	3.7 4.1 3.2 4.0 4.4 3.8 5.0 4.2	32.4	1.4	4+5+4o4+ 5-4+6-5-	37+	20
29	3.7 3.1 2.6 2.8 3.4 2.9 3.8 3.6	25.9	1.0	4+4o3+3+ 4-3o4o4-	29+	21
30	2.7 2.8 2.3 1.9 1.1 2.9 3.9 2.6	20.2	0.7	3o4-3o2+ 1o3o4o2+	22+	23
Mean	2.45 2.20 2.51 2.87 2.22 2.36 2.71 2.69	2.50	0.75			

Table 71

Sudden Ionosphere Disturbances Observed at Washington, D.C.

December 1950

No sudden ionosphere disturbances were observed during the month of December.

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Table 72

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief

Cable and Wireless, Ltd., as Observed in England

1950 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters
November 28	1125	1145	Brentwood	Bahrein I., Canary Is., Chile, Colombia, Portugal, Southern Rhodesia, Switzerland, Venezuela, Yugoslavia, Zanzibar
28	1135	1145	Somerton	Argentina, Ascension I., Brazil, Gold Coast, Nigeria, Union of S. Africa

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

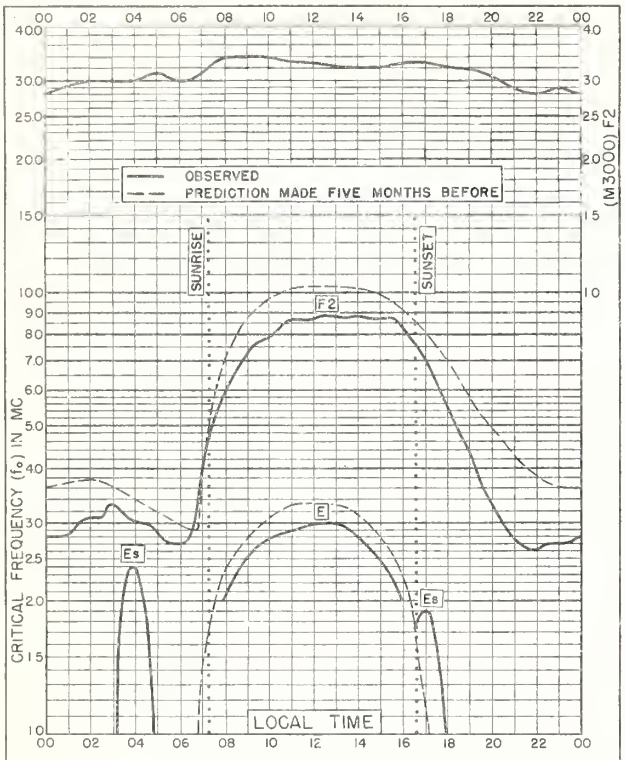

Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W DECEMBER 1950

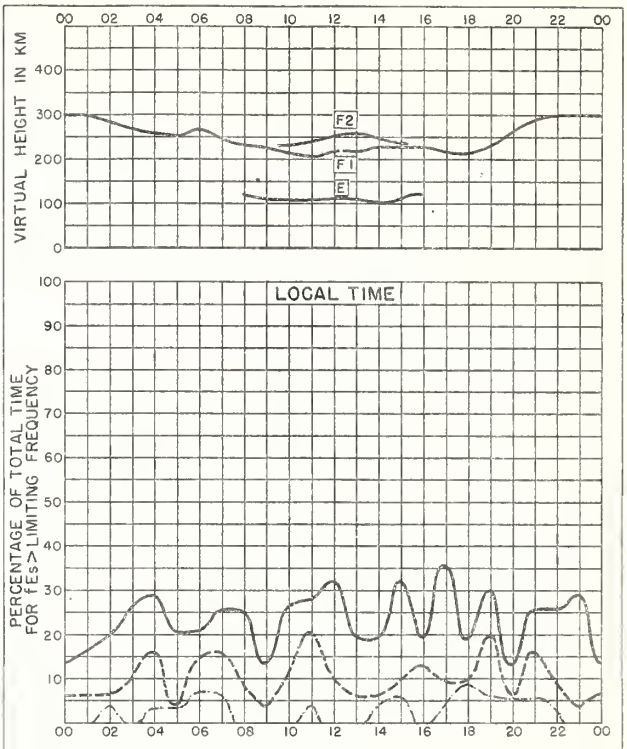

Fig. 2. WASHINGTON, D. C. DECEMBER 1950

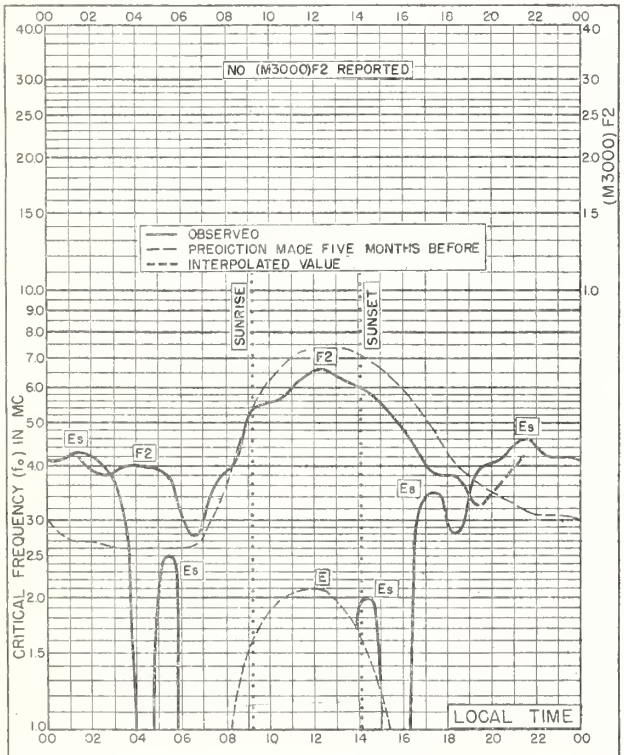

Fig. 3. KIRUNA, SWEDEN
67.8°N, 20.5°E NOVEMBER 1950

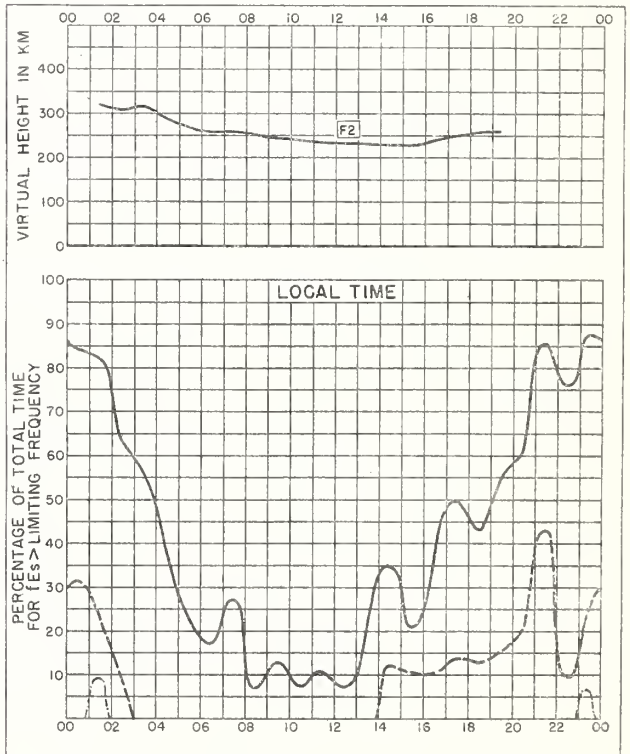

Fig. 4. KIRUNA, SWEDEN NOVEMBER 1950

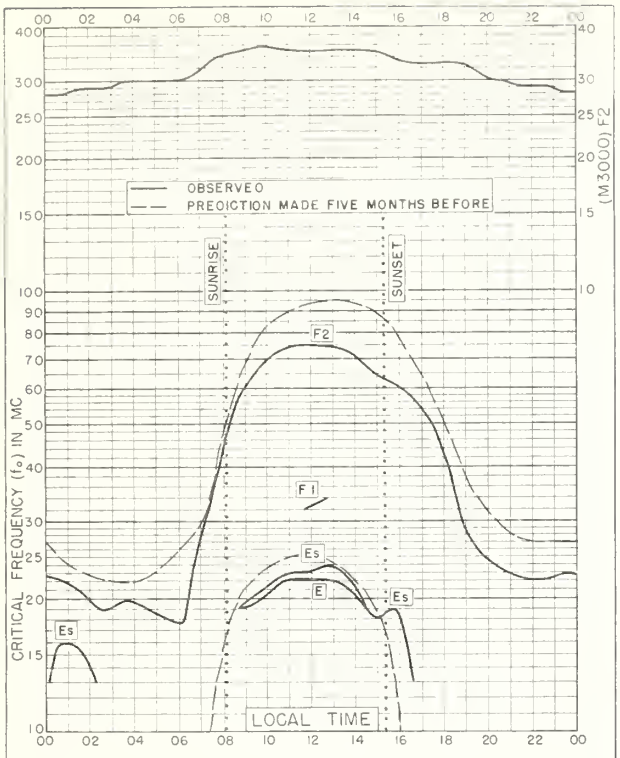

Fig. 5. OSLO, NORWAY
60.0°N, 11.0°E NOVEMBER 1950

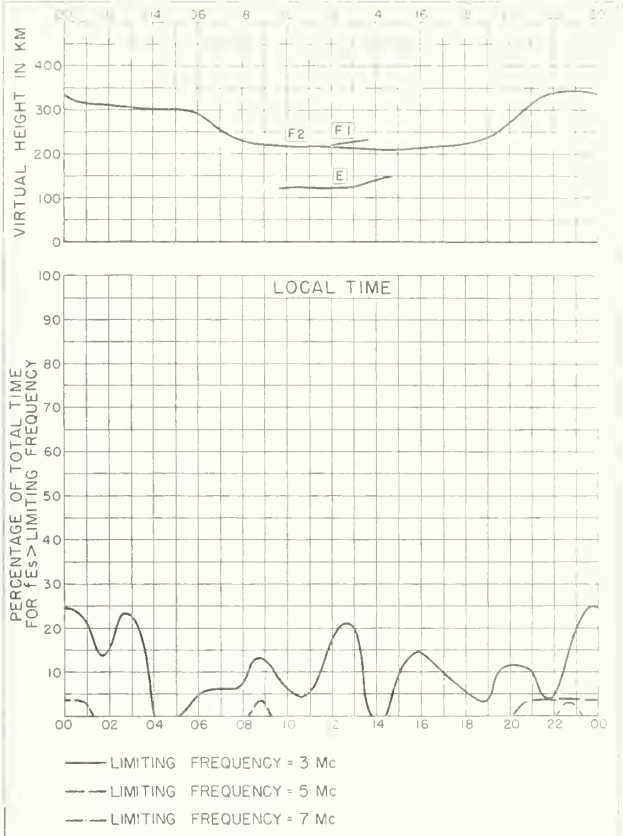

Fig. 6. OSLO, NORWAY NOVEMBER 1950

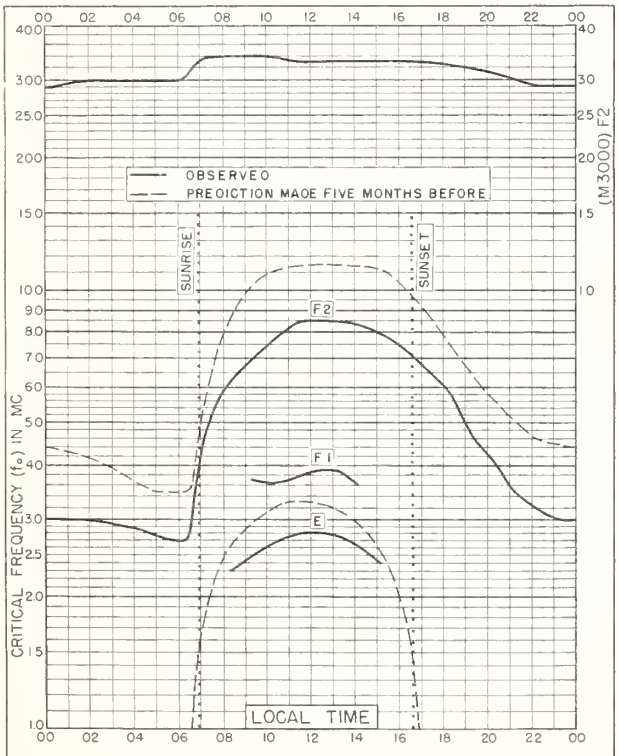

Fig. 7. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W NOVEMBER 1950

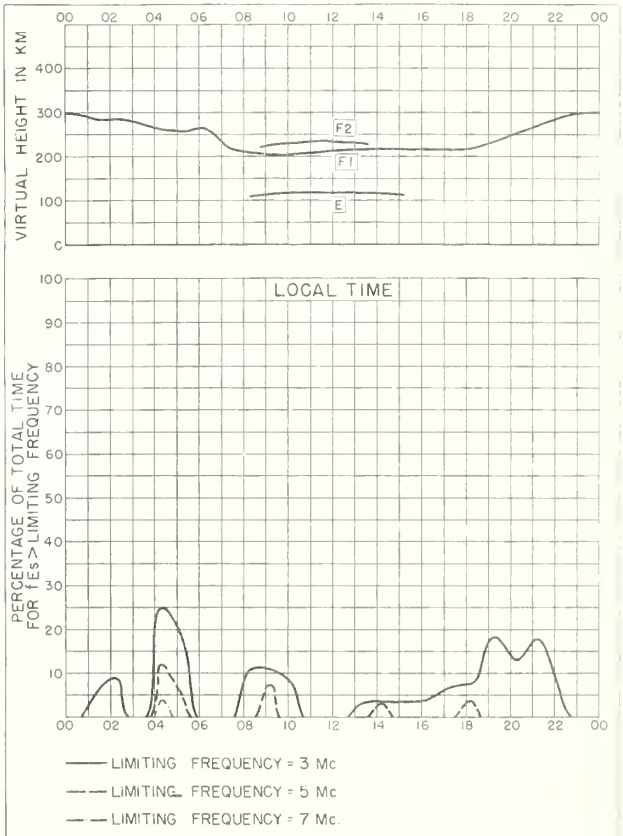

Fig. 8. BOSTON, MASSACHUSETTS NOVEMBER 1950

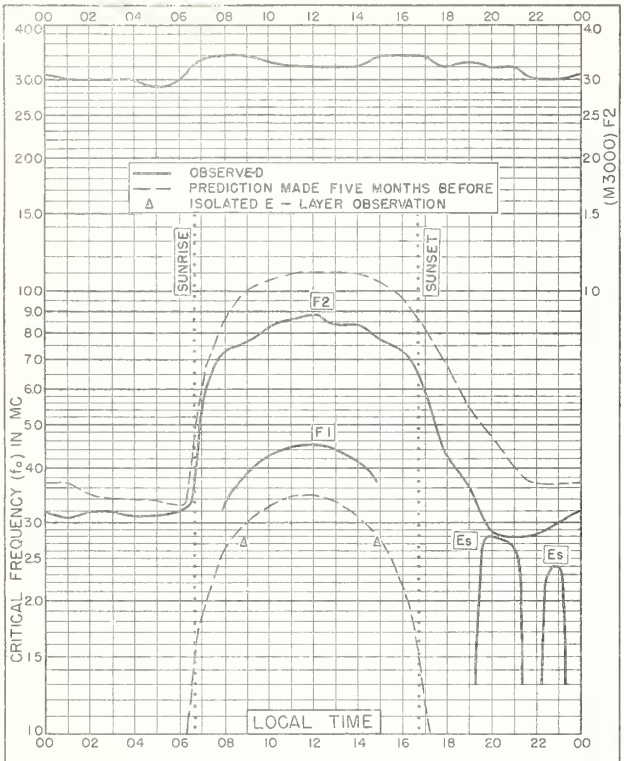

Fig. 9. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W NOVEMBER 1950

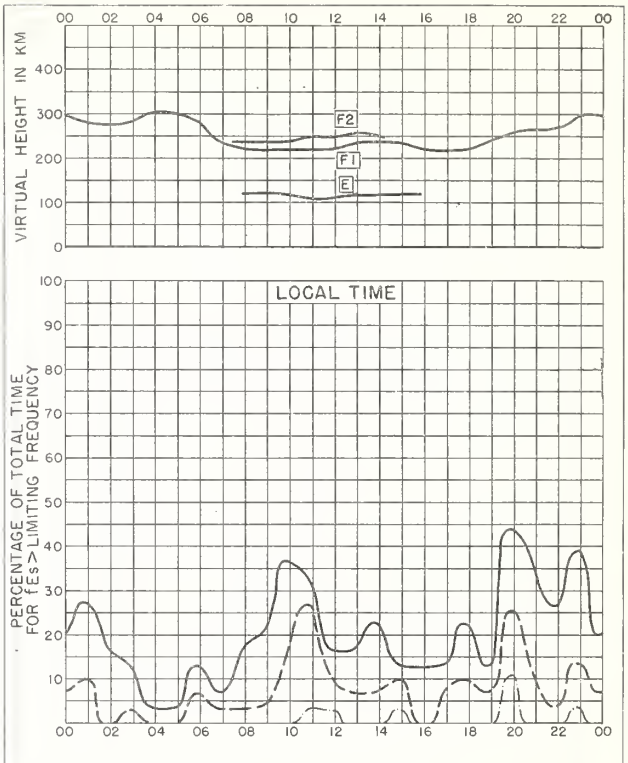

Fig. 10. SAN FRANCISCO, CALIFORNIA NOVEMBER 1950

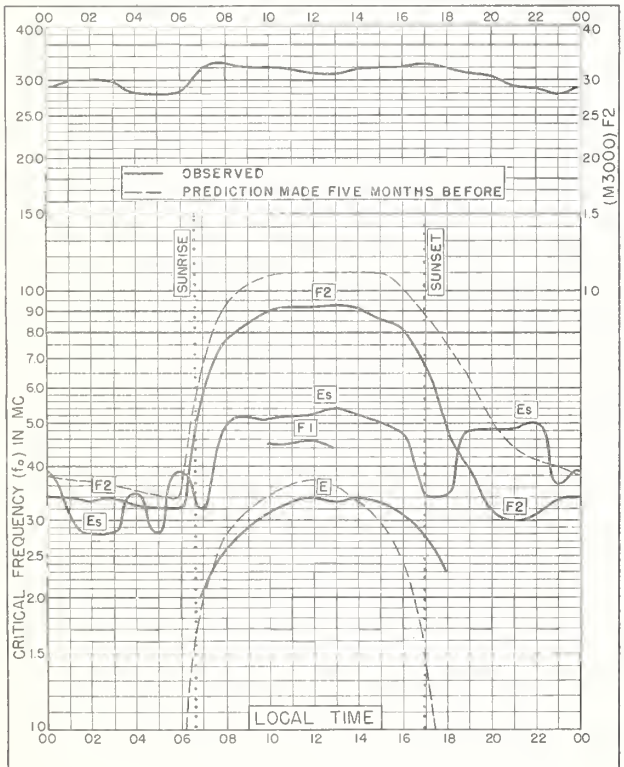

Fig. 11. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W NOVEMBER 1950

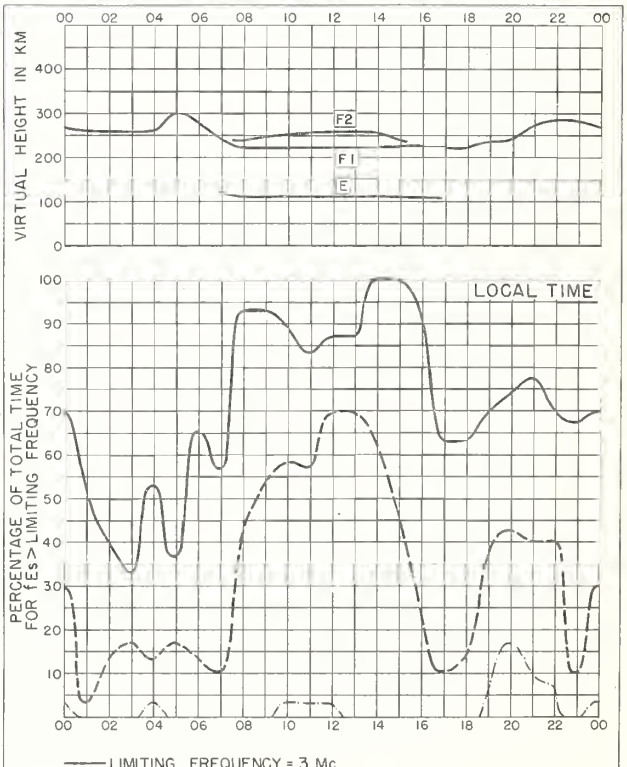

Fig. 12. WHITE SANDS, NEW MEXICO NOVEMBER 1950

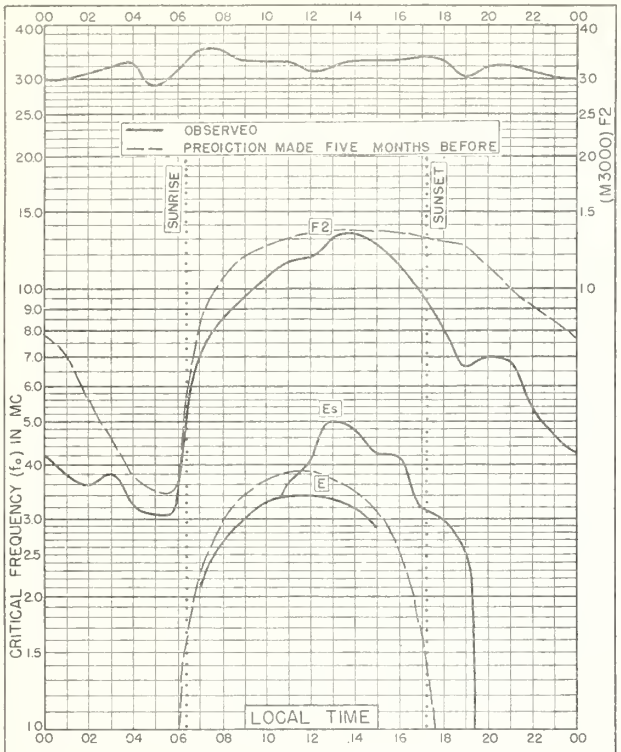

Fig. 13. OKINAWA I.
26.3°N, 127.7°E NOVEMBER 1950

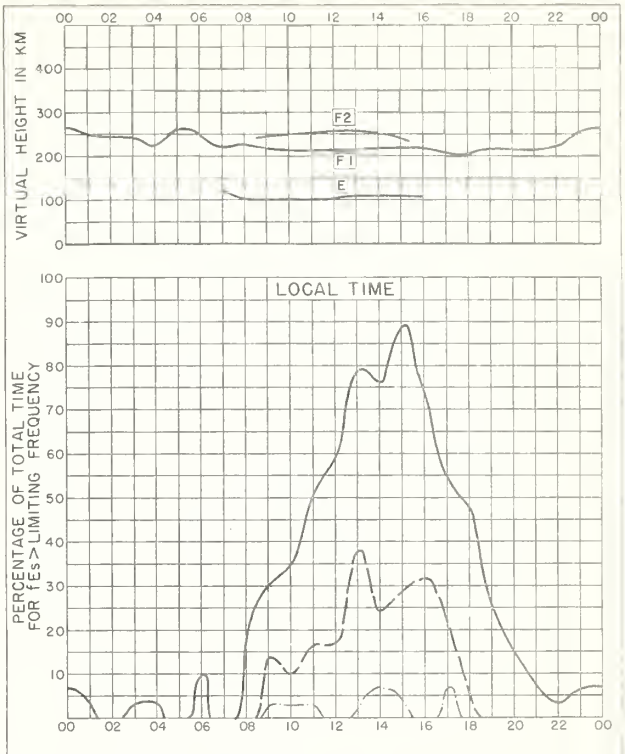

Fig. 14. OKINAWA I. NOVEMBER 1950

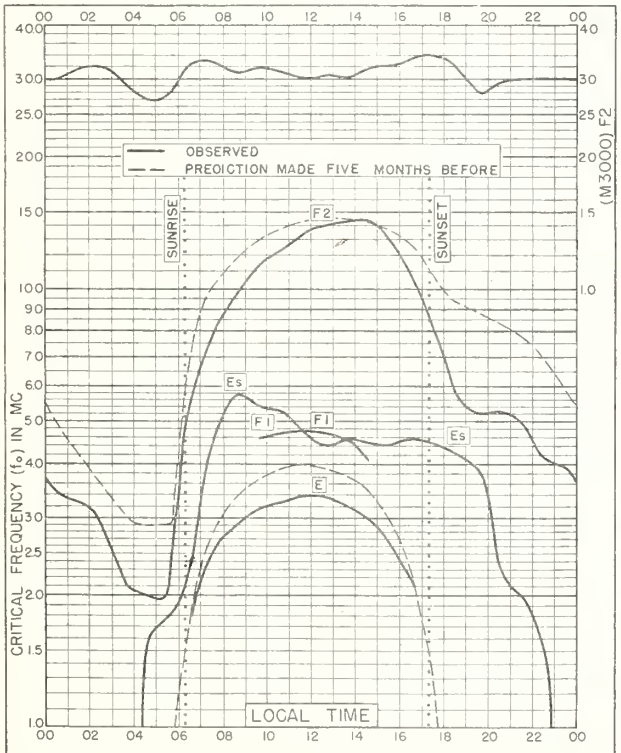

Fig. 15. MAUI, HAWAII
20.8°N, 156.5°W NOVEMBER 1950

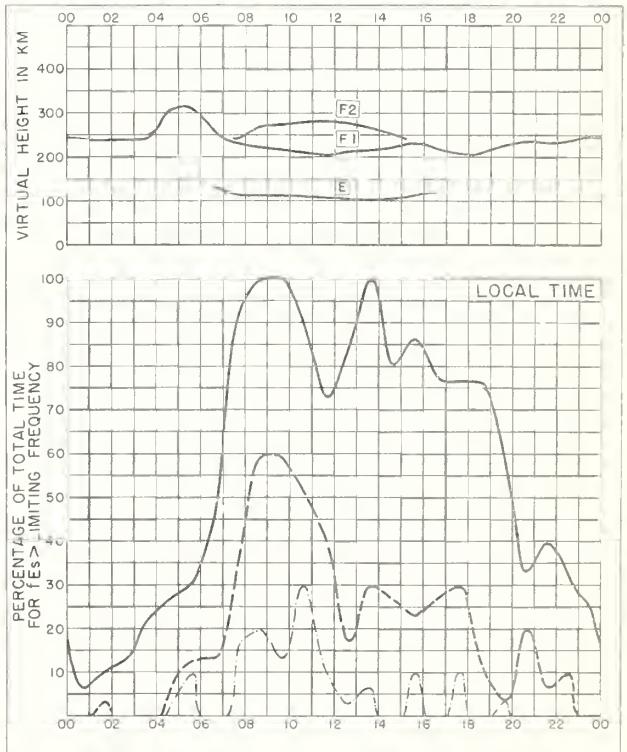

Fig. 16. MAUI, HAWAII NOVEMBER 1950

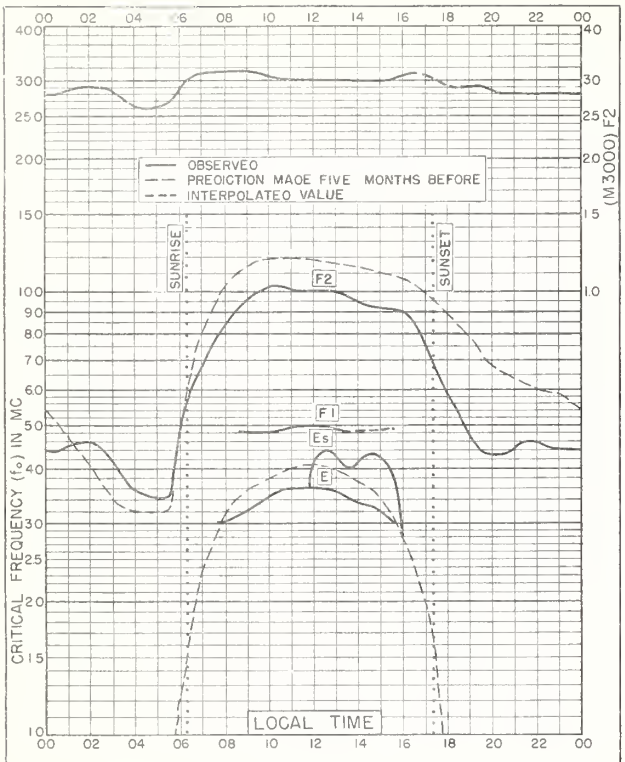

Fig. 17. SAN JUAN, PUERTO RICO
18.4°N, 66.0°W NOVEMBER 1950

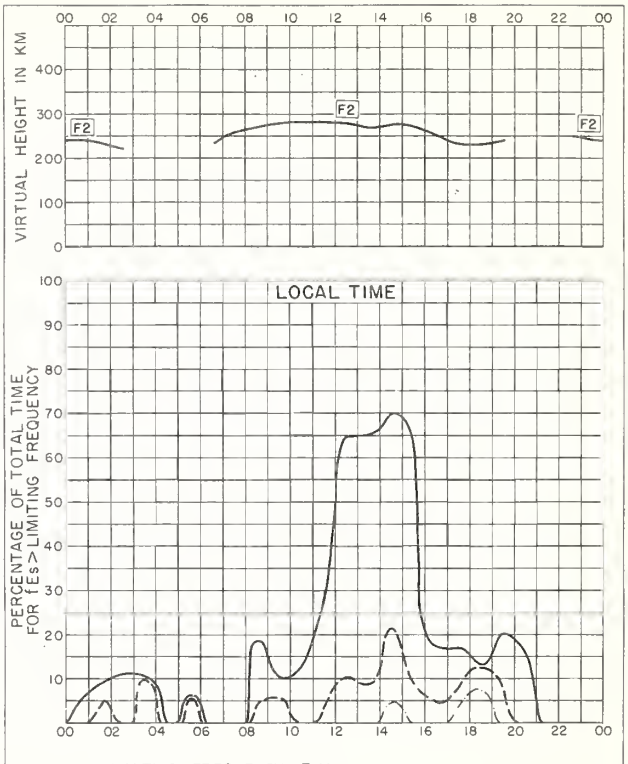

Fig. 18. SAN JUAN, PUERTO RICO NOVEMBER 1950

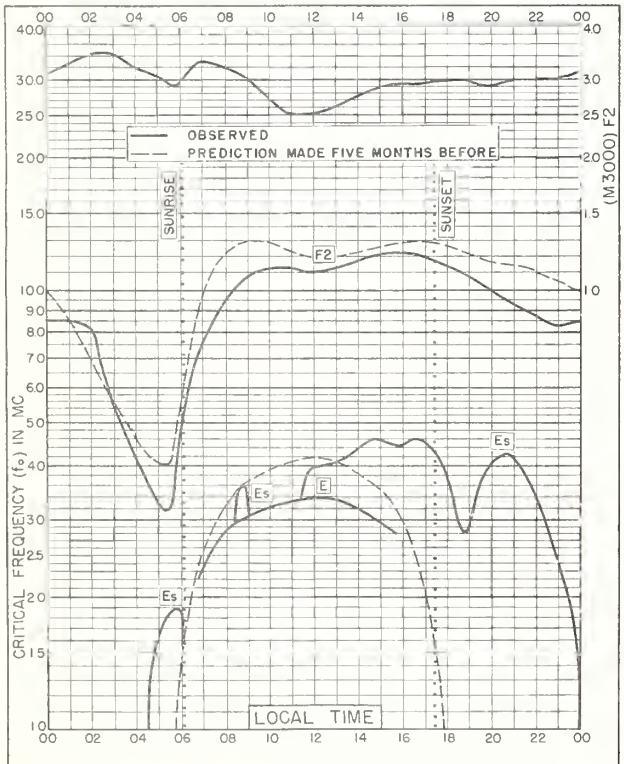

Fig. 19. GUAM I.
13.6°N, 144.9°E NOVEMBER 1950

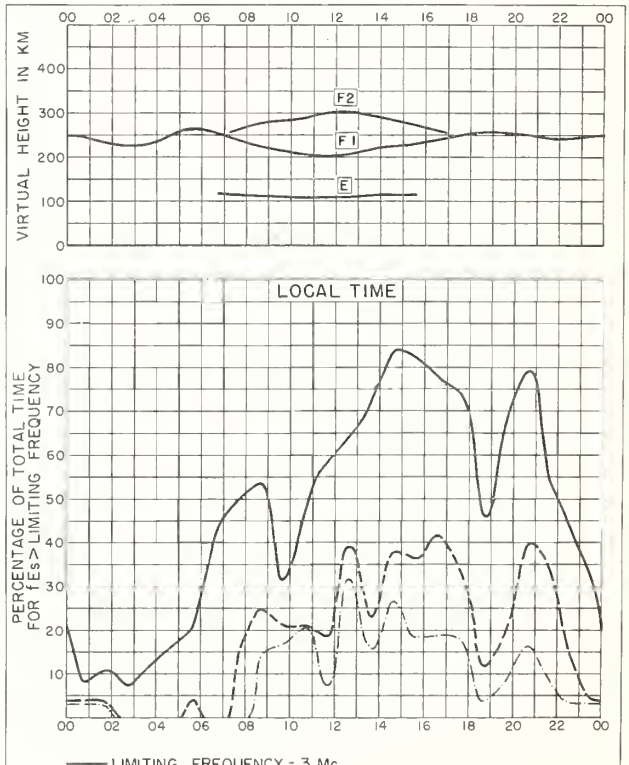

Fig. 20. GUAM I. NOVEMBER 1950

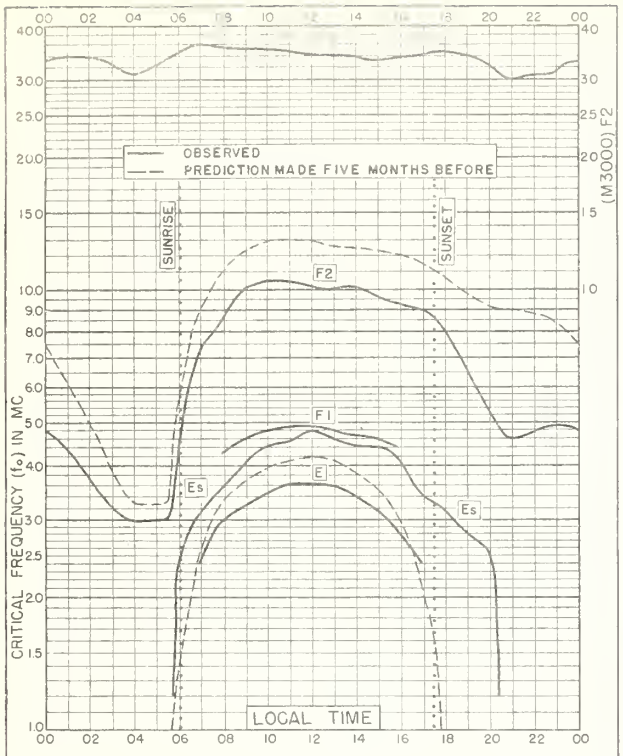

Fig. 21. TRINIDAD, BRIT. WEST INDIES
10.6°N, 61.2°W NOVEMBER 1950

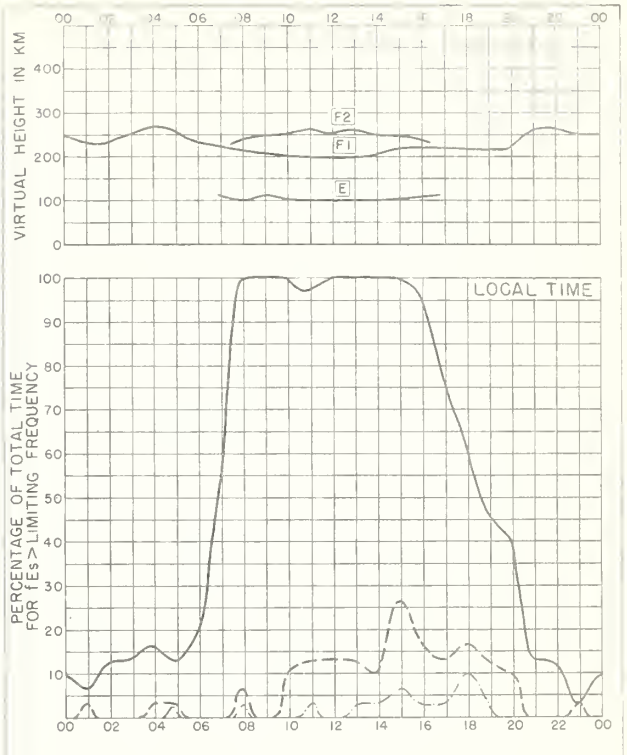

Fig. 22. TRINIDAD, BRIT. WEST INDIES NOVEMBER 1950

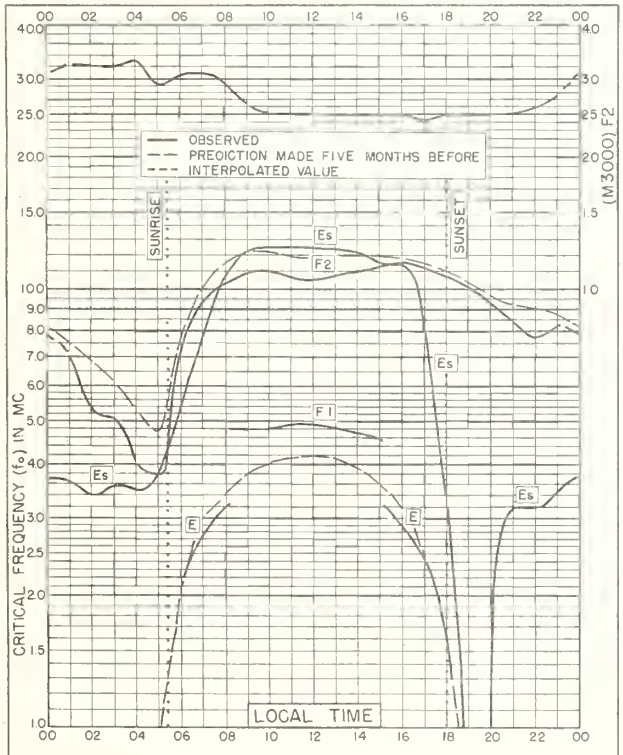

Fig. 23. HUANCAYO, PERU
12.0°S, 75.3°W NOVEMBER 1950

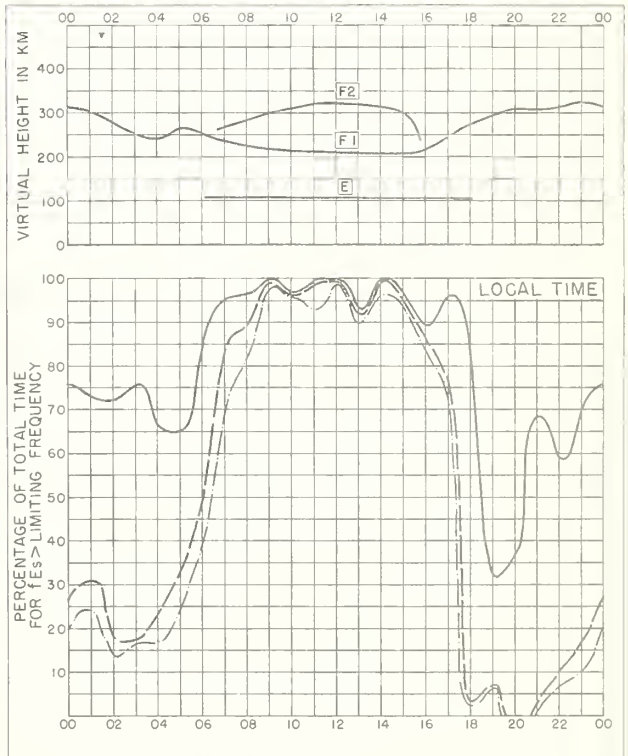

Fig. 24. HUANCAYO, PERU NOVEMBER 1950

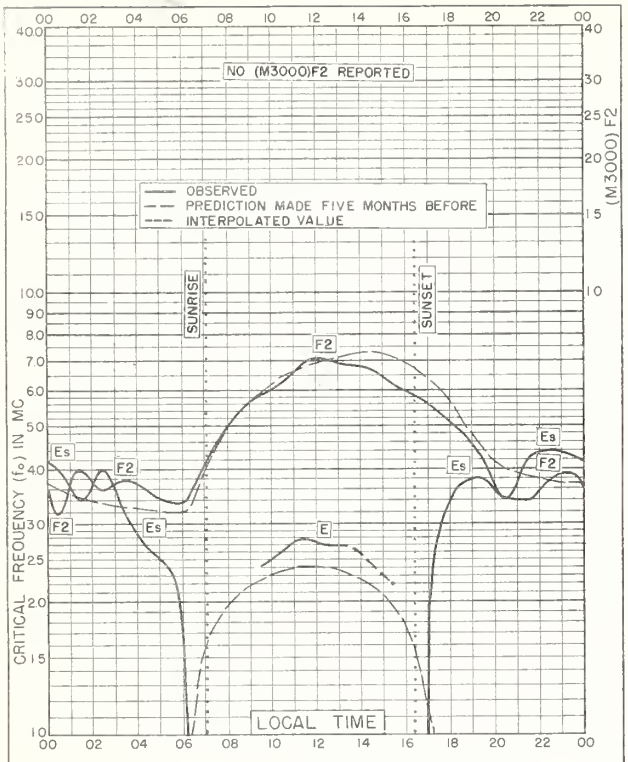

Fig. 25. KIRUNA, SWEDEN
67.8°N, 20.5°E OCTOBER 1950

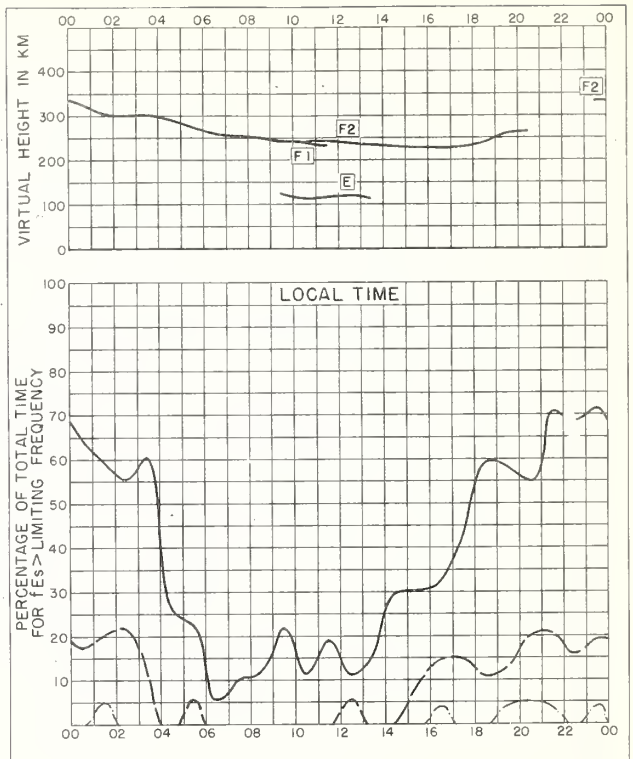

Fig. 26. KIRUNA, SWEDEN OCTOBER 1950

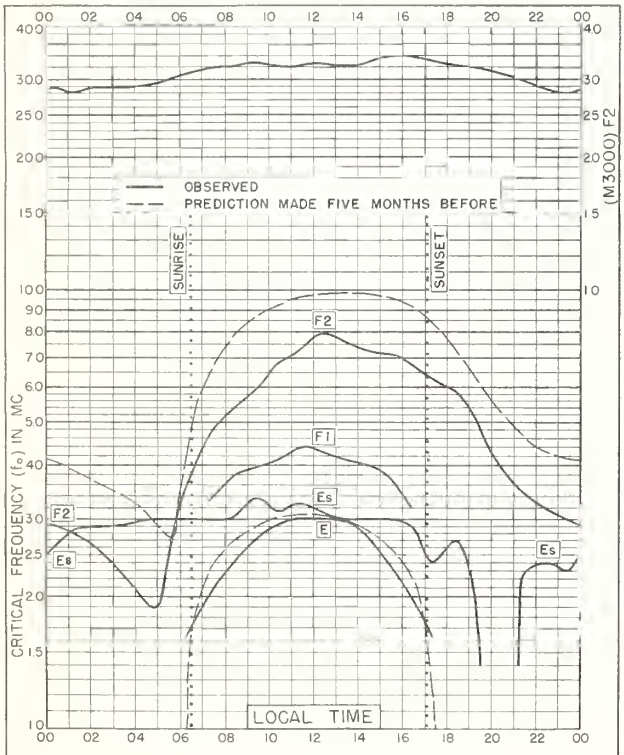

Fig. 27. De BILT, HOLLAND
52.1°N, 5.2°E OCTOBER 1950

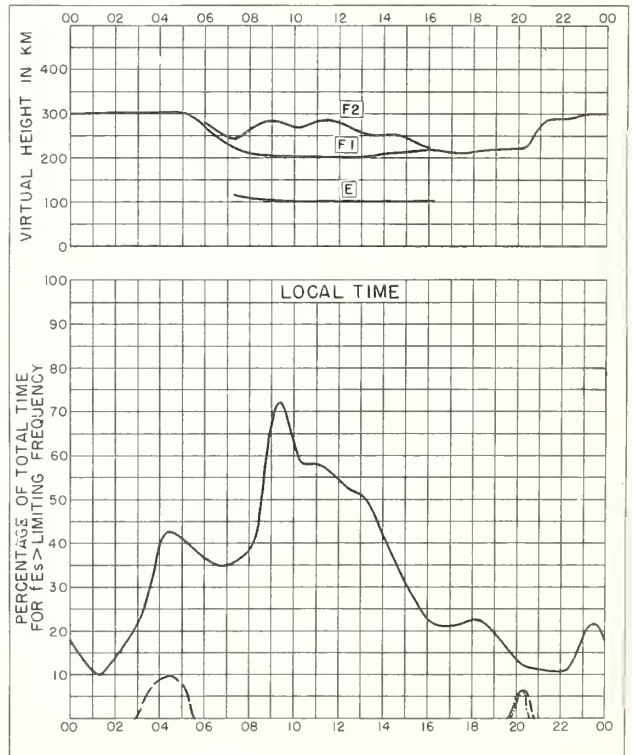

Fig. 28. De BILT, HOLLAND OCTOBER 1950

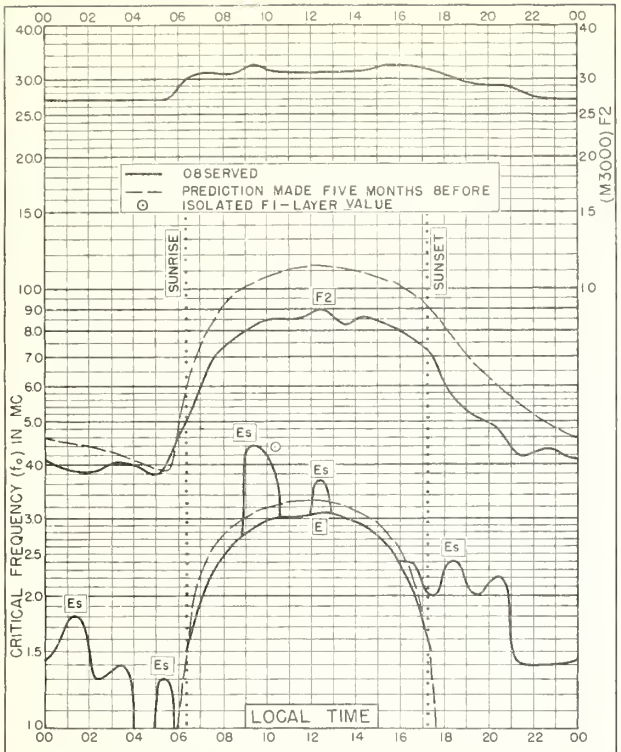

Fig. 29. WAKKANAI, JAPAN
45.4°N, 141.7°E OCTOBER 1950

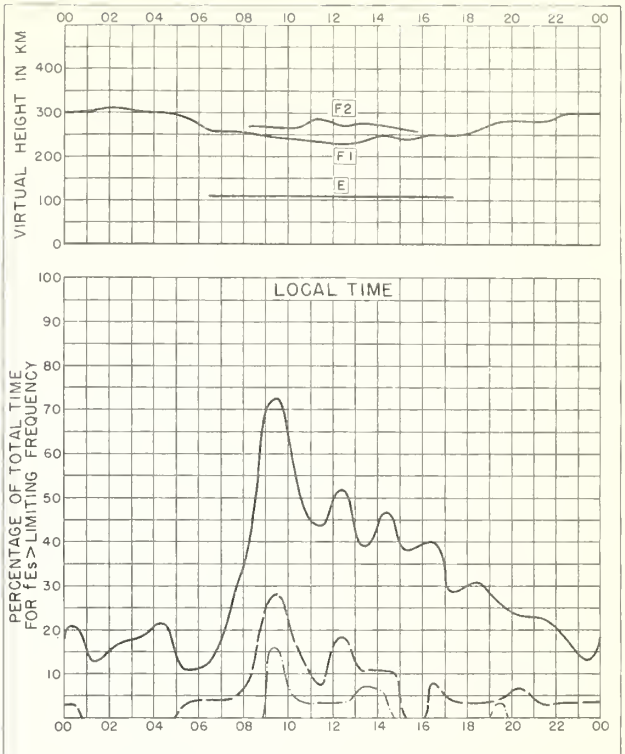

Fig. 30. WAKKANAI, JAPAN OCTOBER 1950

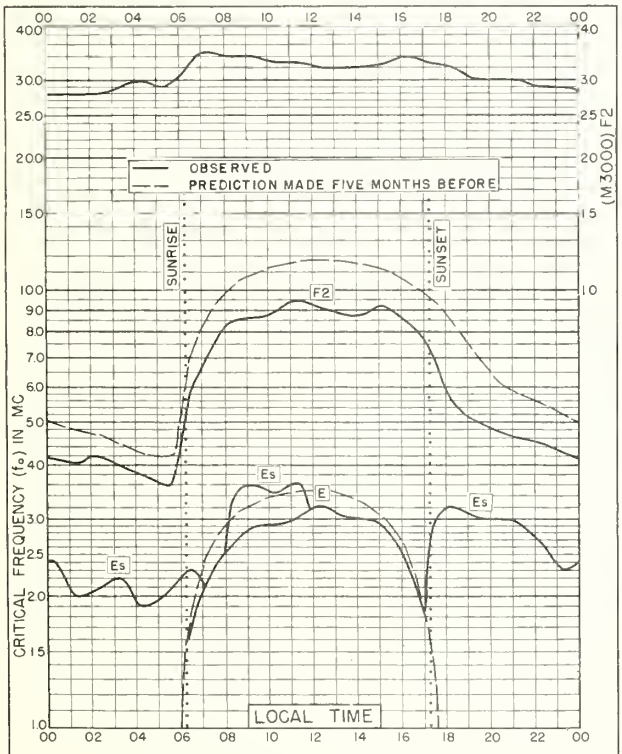

Fig. 31. AKITA, JAPAN
39.7°N, 140.1°E OCTOBER 1950

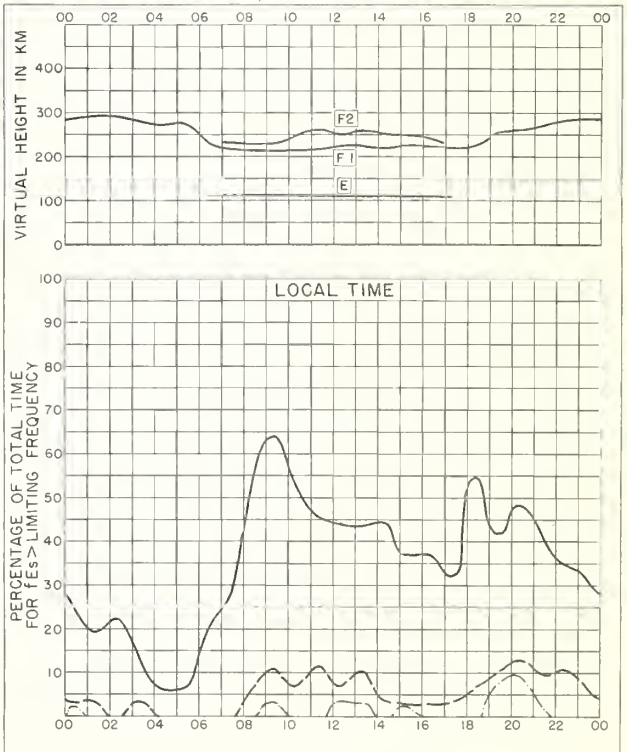

Fig. 32. AKITA, JAPAN OCTOBER 1950

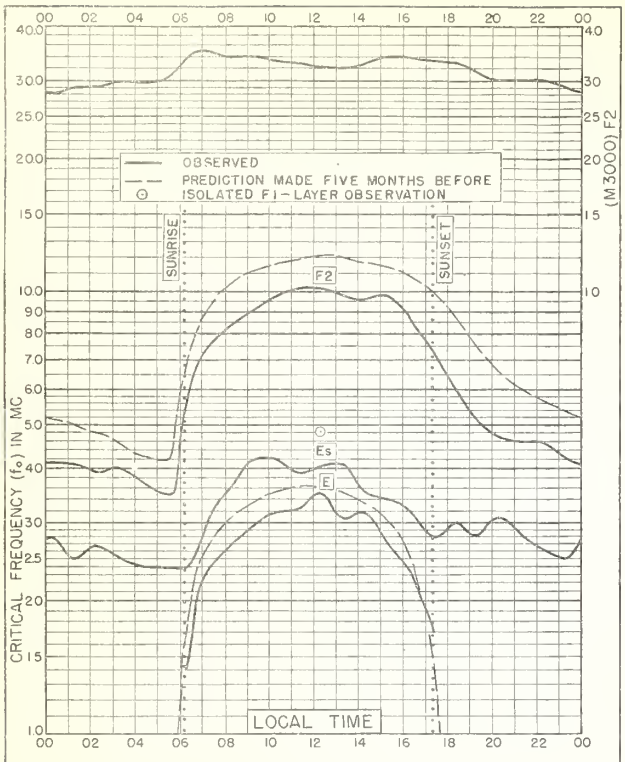

Fig. 33. TOKYO, JAPAN
35.7°N, 139.5°E OCTOBER 1950

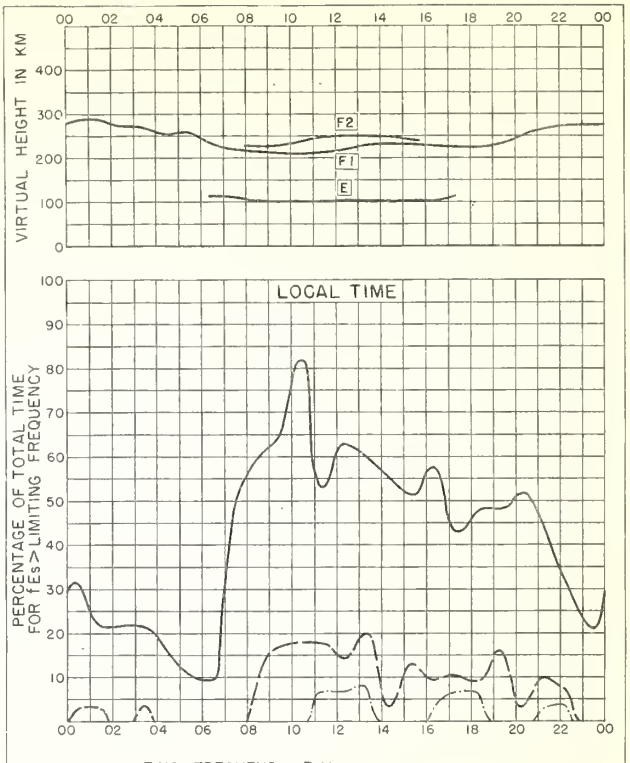

Fig. 34. TOKYO, JAPAN OCTOBER 1950

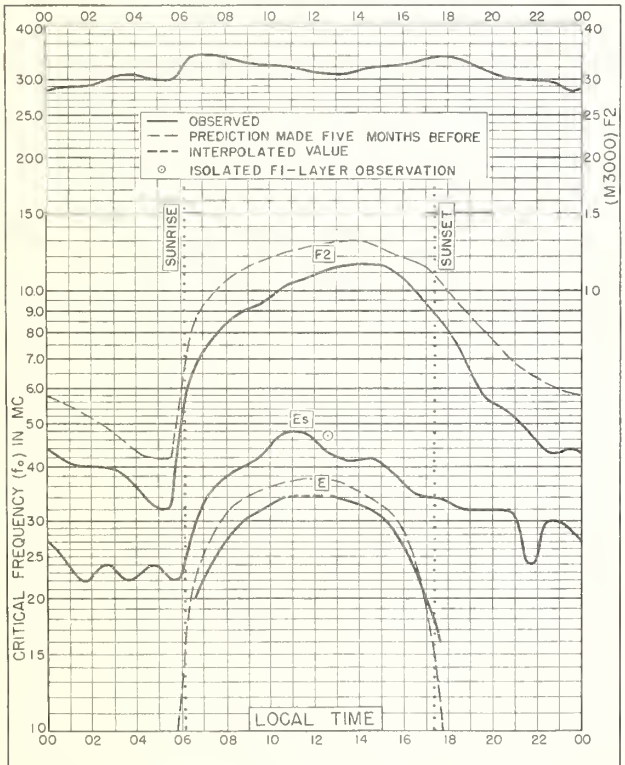

Fig. 35. YAMAGAWA, JAPAN
31.2°N, 130.6°E OCTOBER 1950

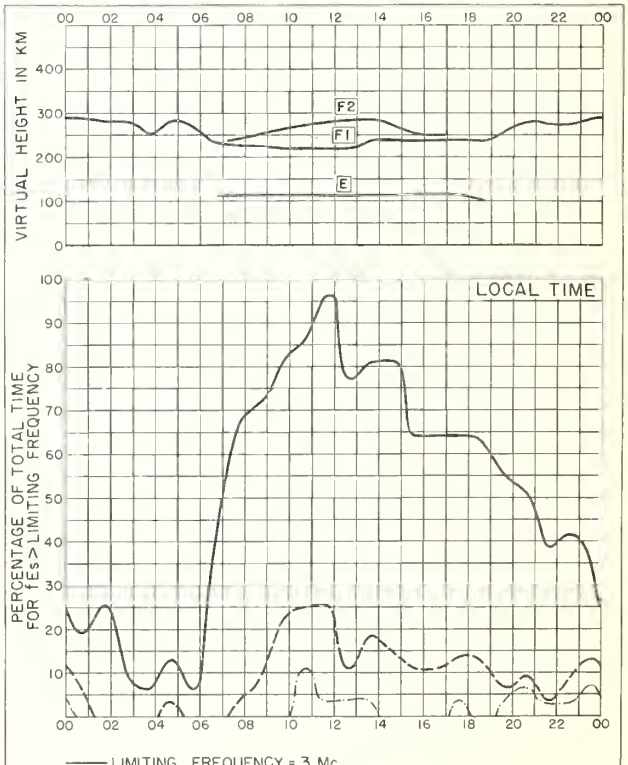

Fig. 36. YAMAGAWA, JAPAN OCTOBER 1950

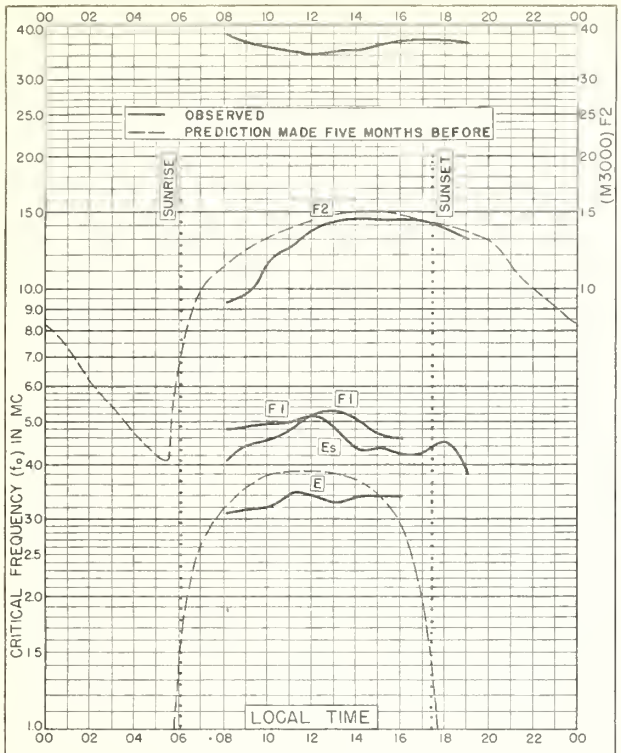

Fig. 37. FORMOSA, CHINA
25.0°N, 121.0°E OCTOBER 1950

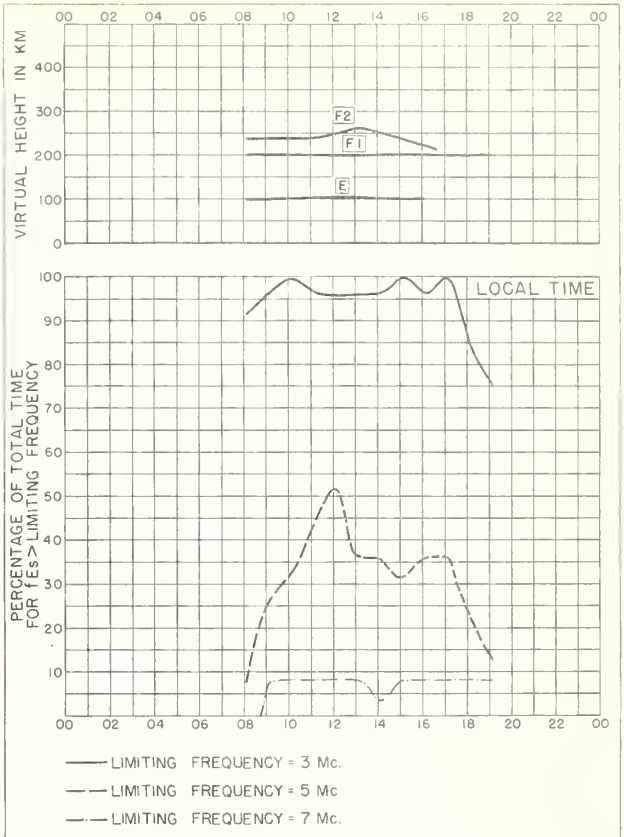

Fig. 38. FORMOSA, CHINA OCTOBER 1950

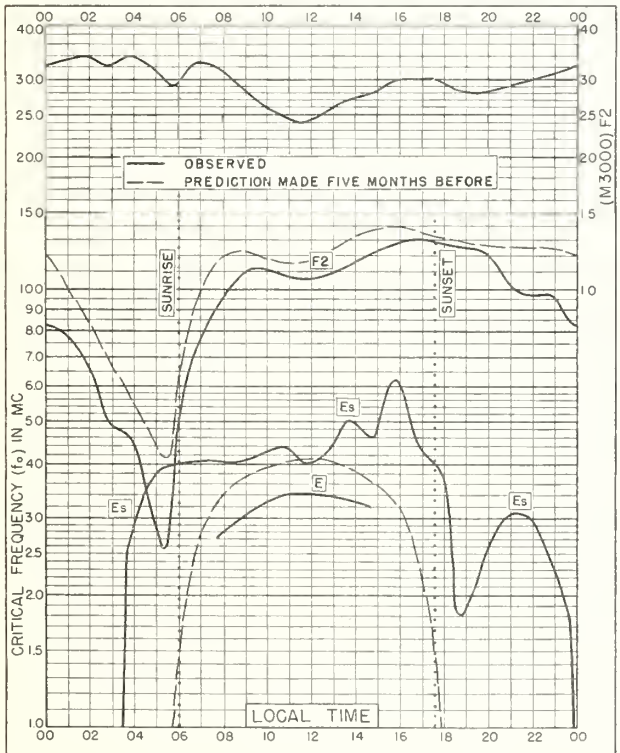

Fig. 39. GUAM I.
13.6°N, 144.9°E OCTOBER 1950

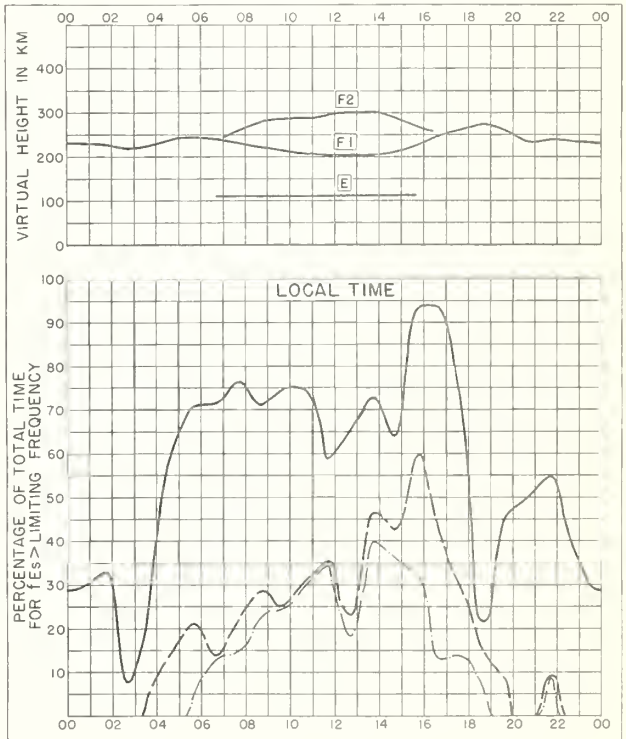

Fig. 40. GUAM I. OCTOBER 1950

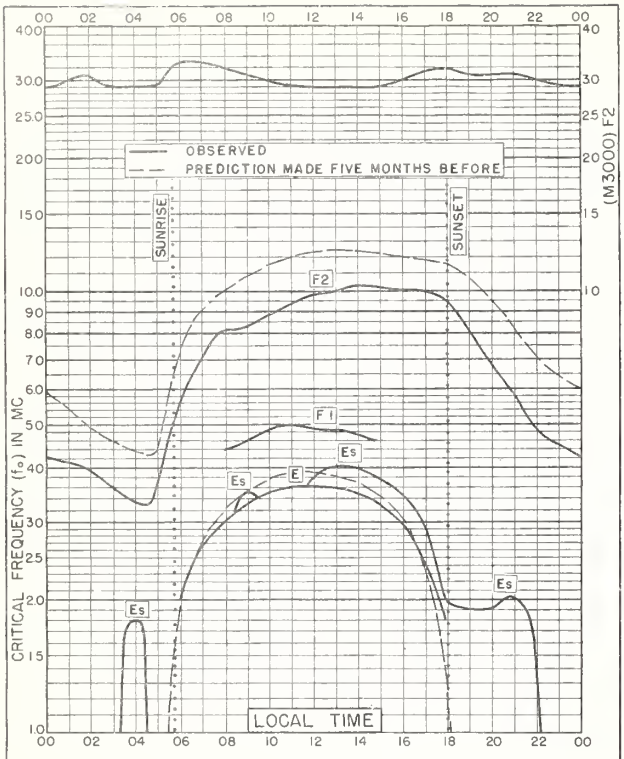

Fig. 41. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.1°E OCTOBER 1950

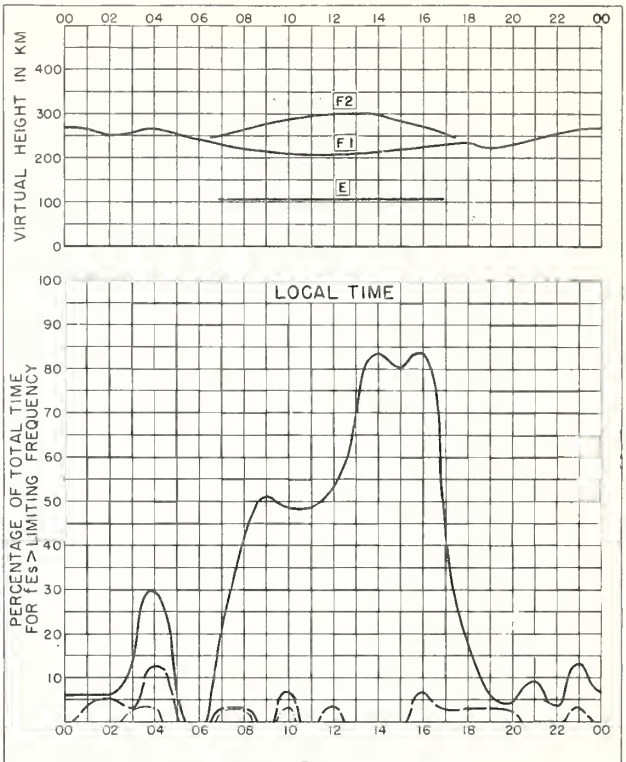

Fig. 42. JOHANNESBURG, U. OF S. AFRICA OCTOBER 1950

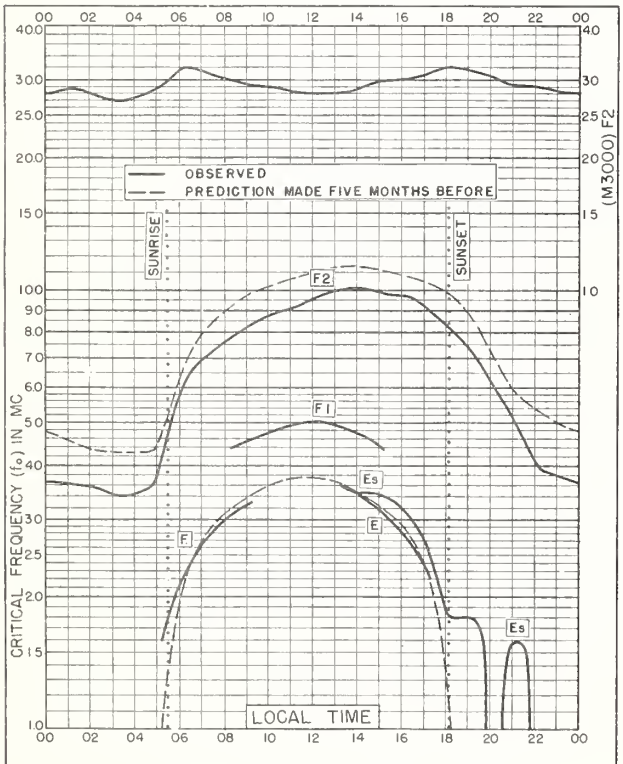

Fig. 43. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E OCTOBER 1950

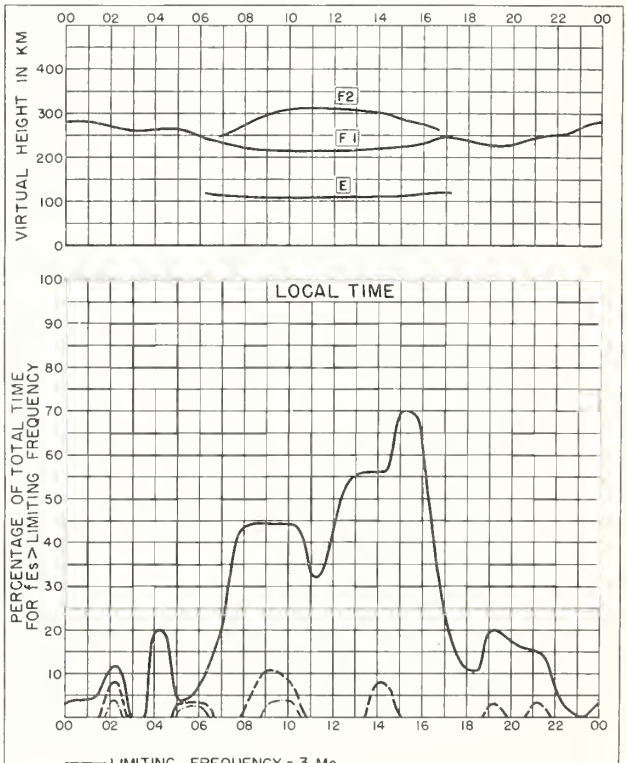

Fig. 44. CAPETOWN, U. OF S. AFRICA OCTOBER 1950

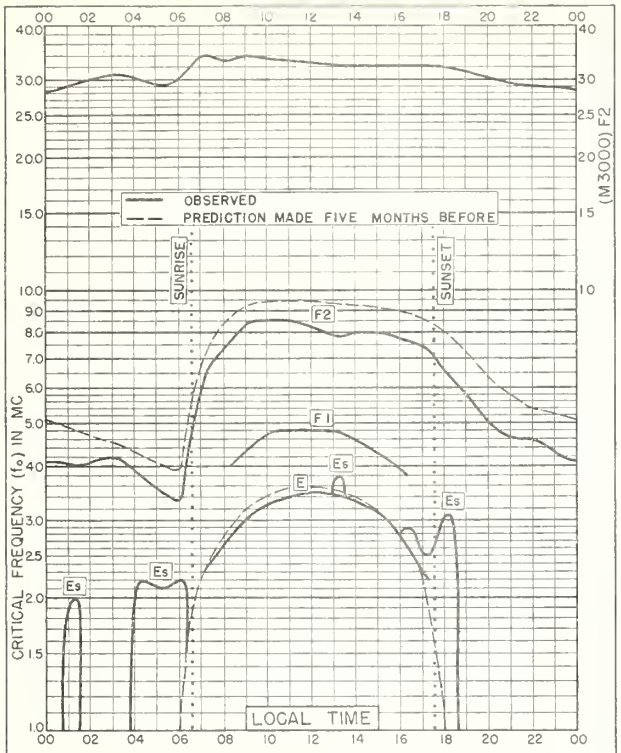

Fig. 45. BRISBANE, AUSTRALIA
27.5°S, 153.0°E AUGUST 1950

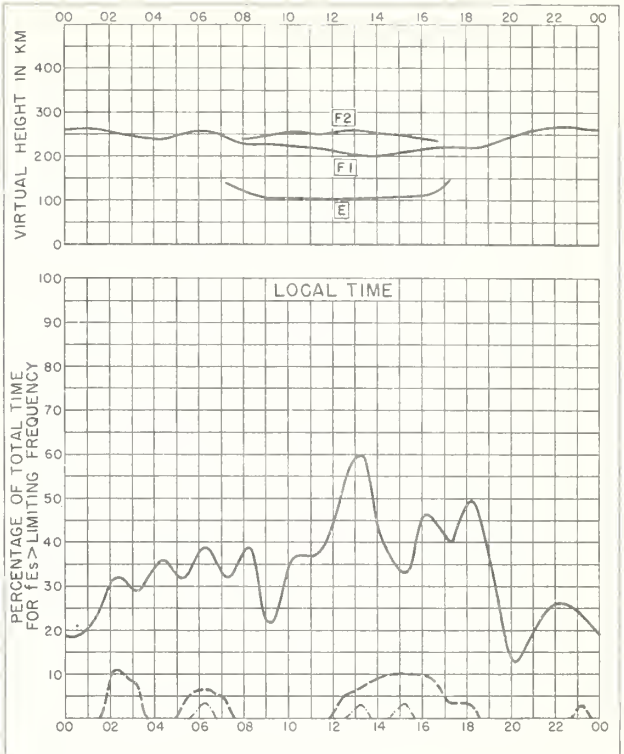

Fig. 46. BRISBANE, AUSTRALIA AUGUST 1950

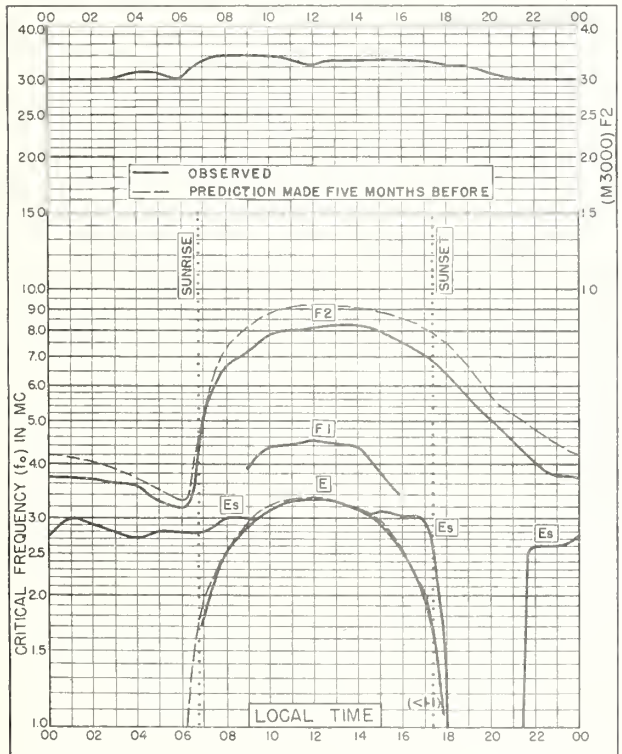

Fig. 47. CANBERRA, AUSTRALIA
35.3°S, 149.0°E AUGUST 1950

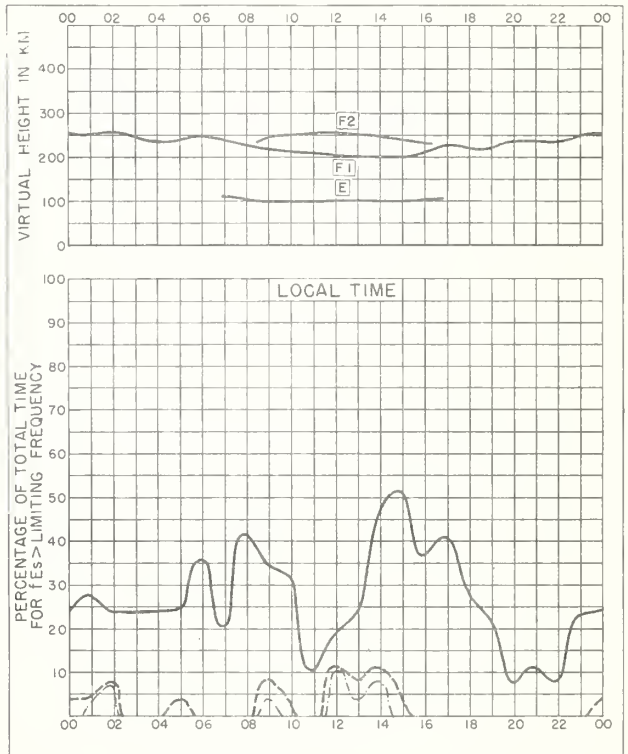

Fig. 48. CANBERRA, AUSTRALIA AUGUST 1950

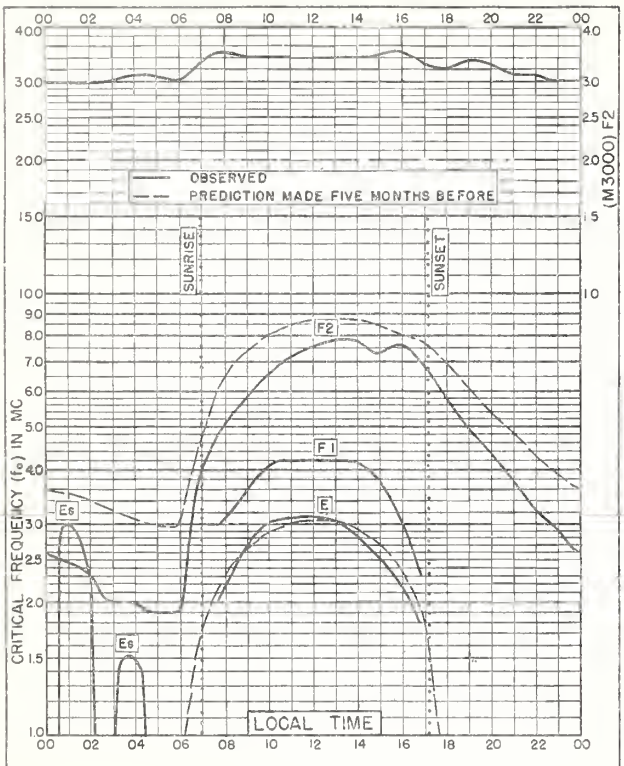

Fig. 49. HOBART, TASMANIA
42.8°S, 147.4°E AUGUST 1950

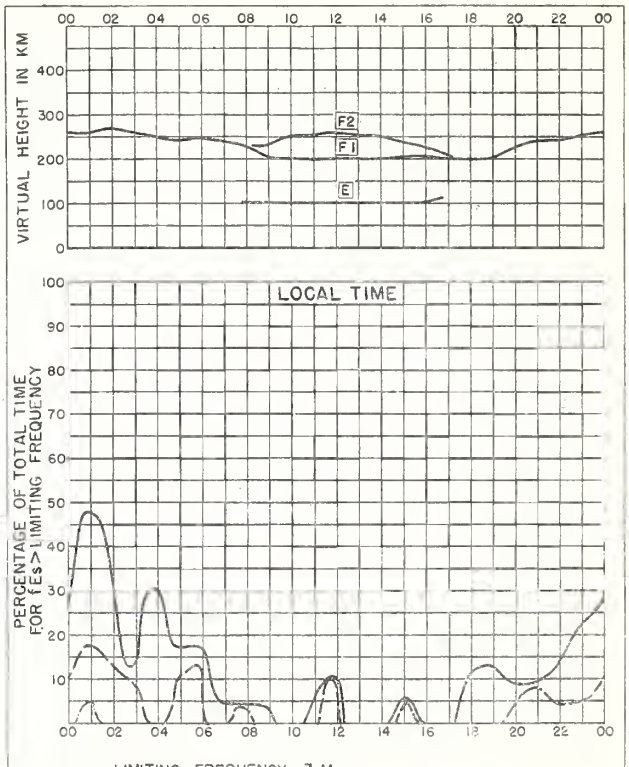

Fig. 50. HOBART, TASMANIA AUGUST 1950

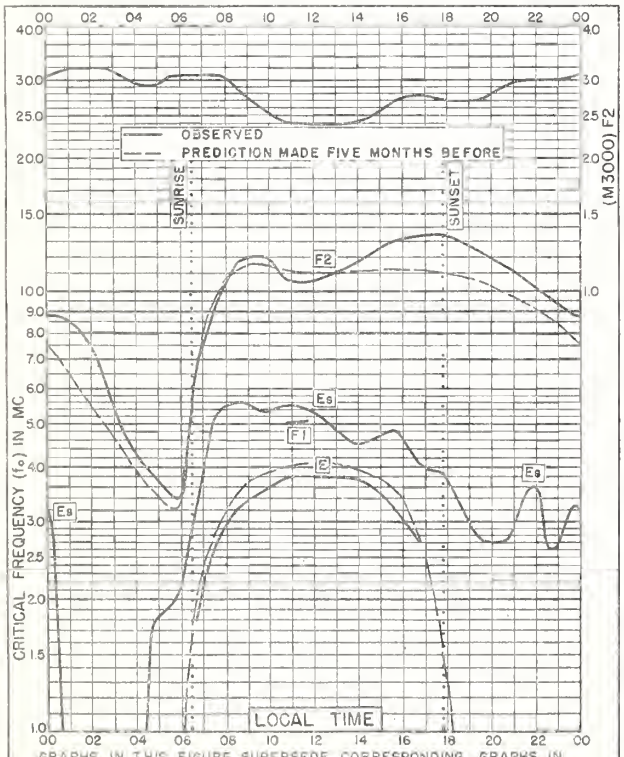

Fig. 51. GUAM I
13.6°N, 144.9°E JANUARY 1950

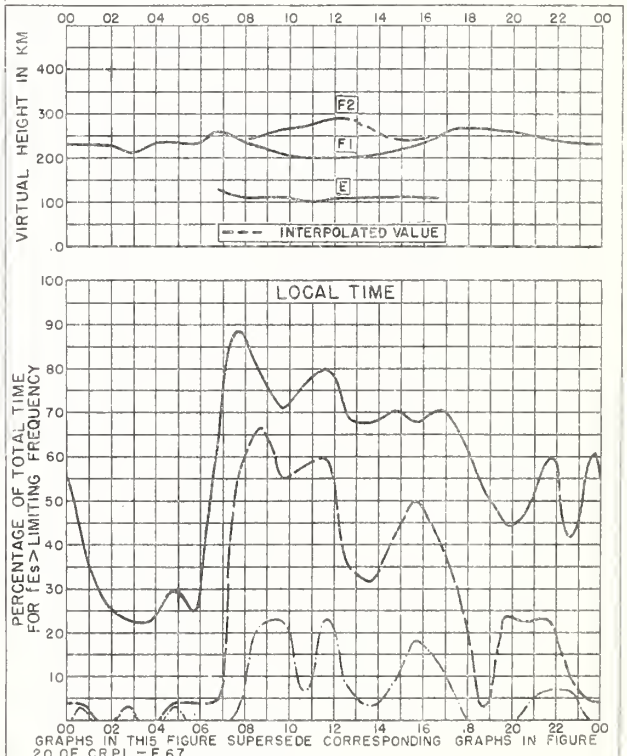

Fig. 52. GUAM I. JANUARY 1950

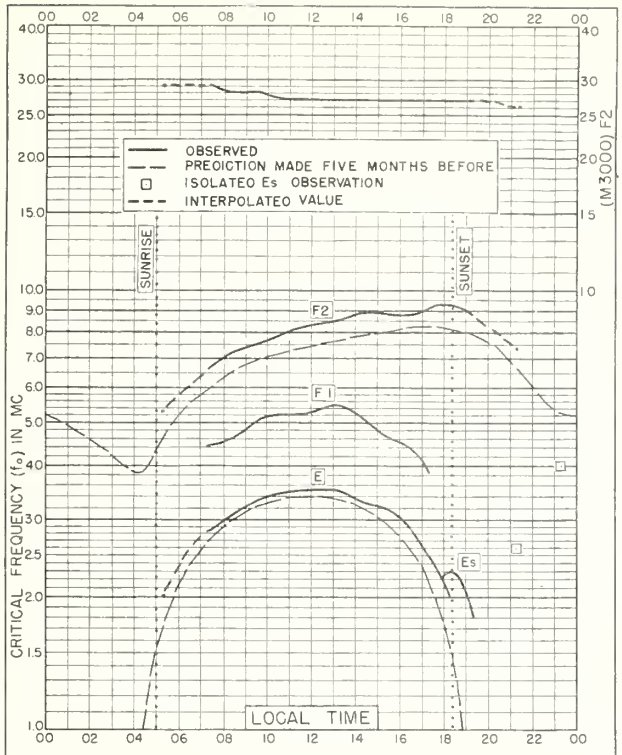

Fig. 53. CAMPBELL I.
52.5°S, 169.2°E OCTOBER 1949

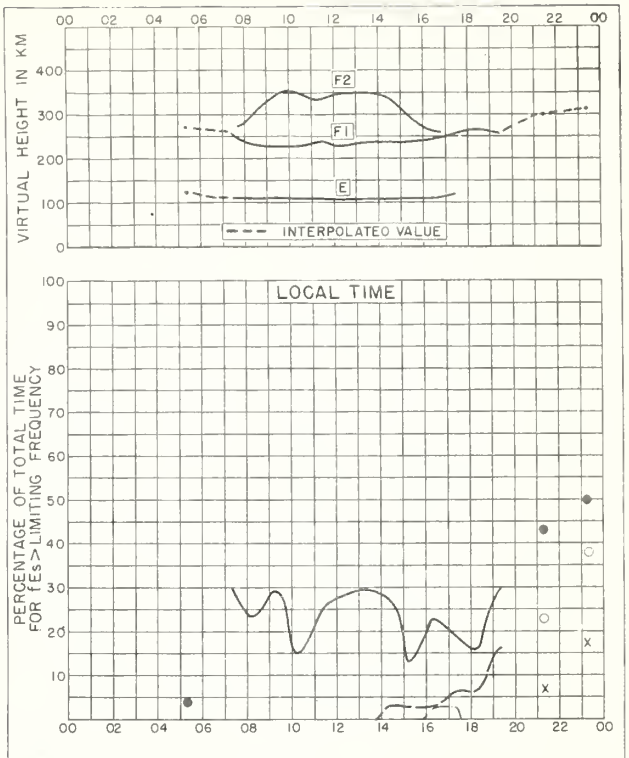

Fig. 54. CAMPBELL I. OCTOBER 1949

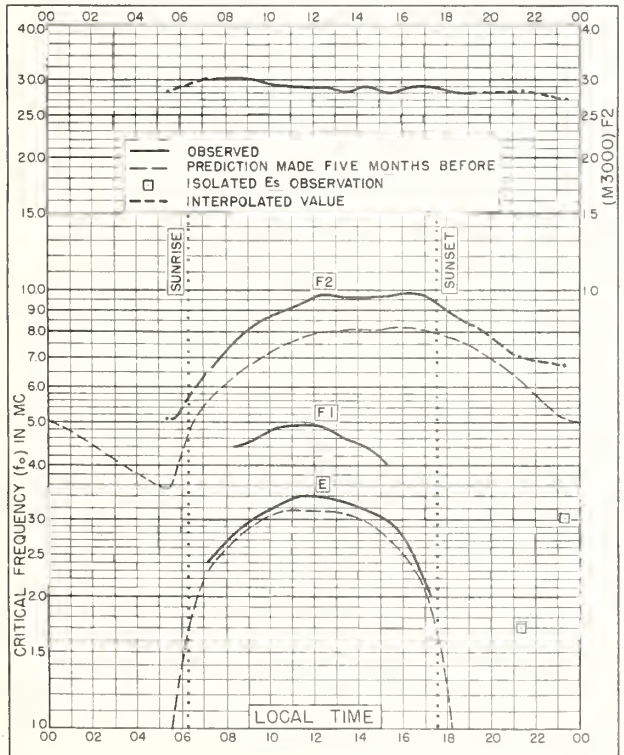

Fig. 55. CAMPBELL I.
52.5°S, 169.2°E SEPTEMBER 1949

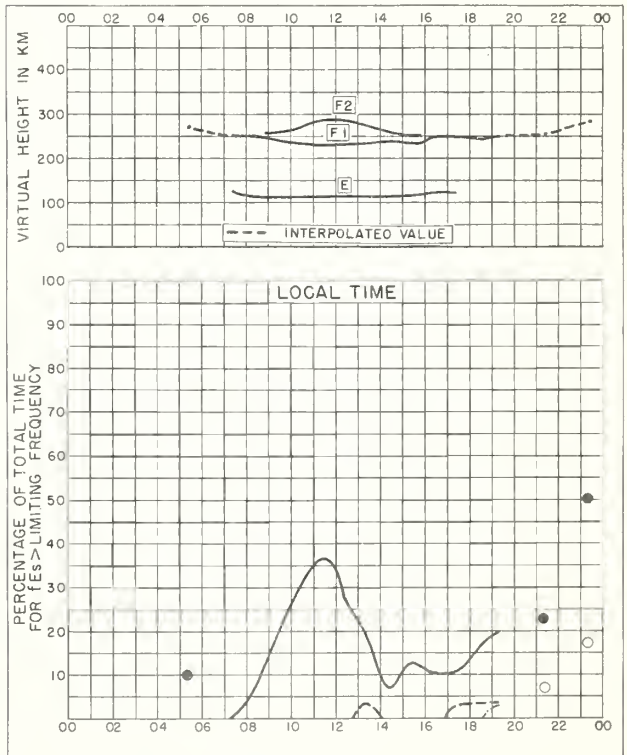

Fig. 56. CAMPBELL I. SEPTEMBER 1949

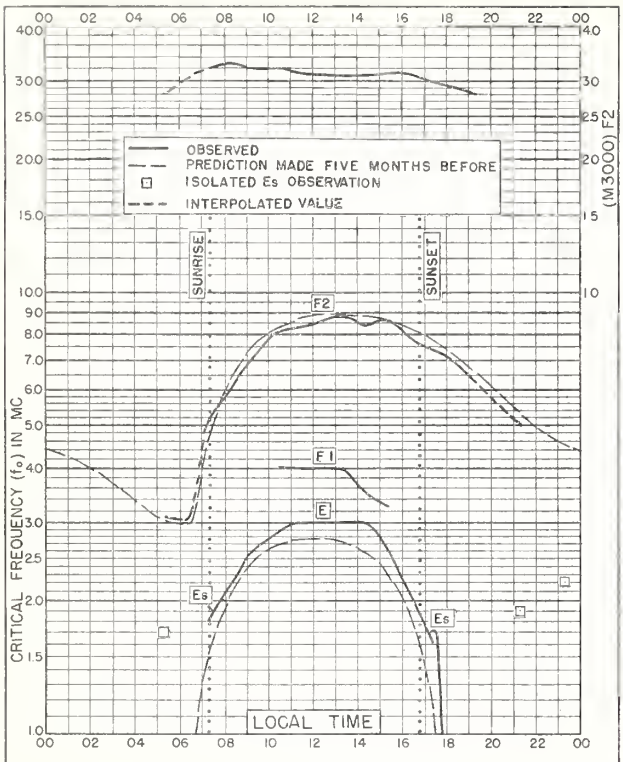

Fig. 57. CAMPBELL I.
52.5°S, 169.2°E AUGUST 1949

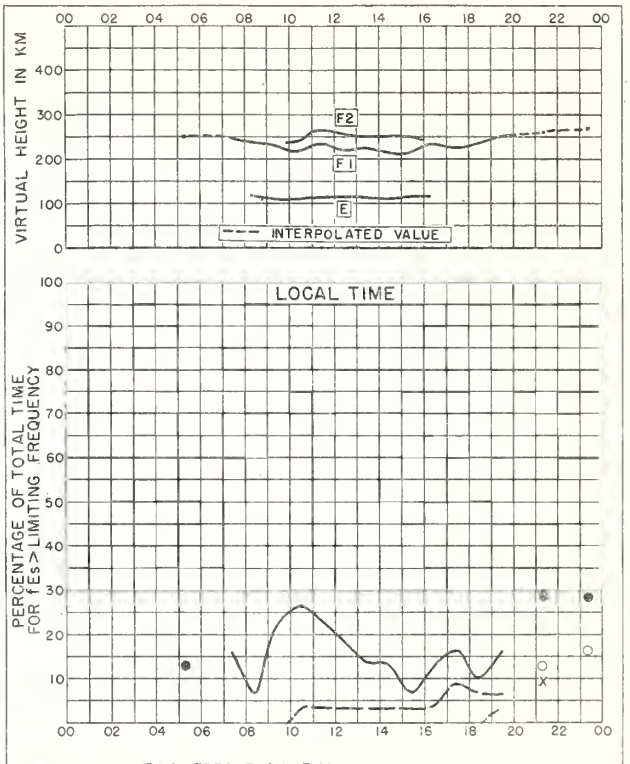

Fig. 58. CAMPBELL I. AUGUST 1949

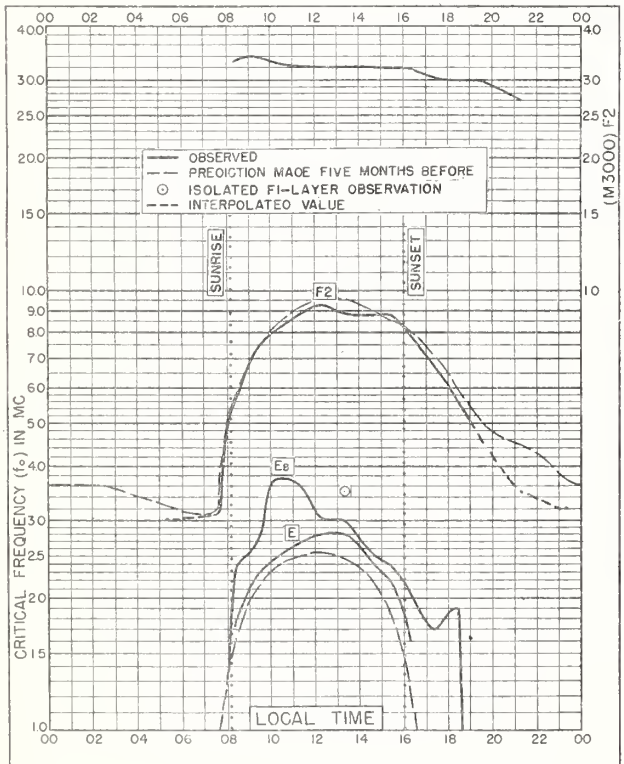

Fig. 59. CAMPBELL I.
52.5°S, 169.2°E JULY 1949

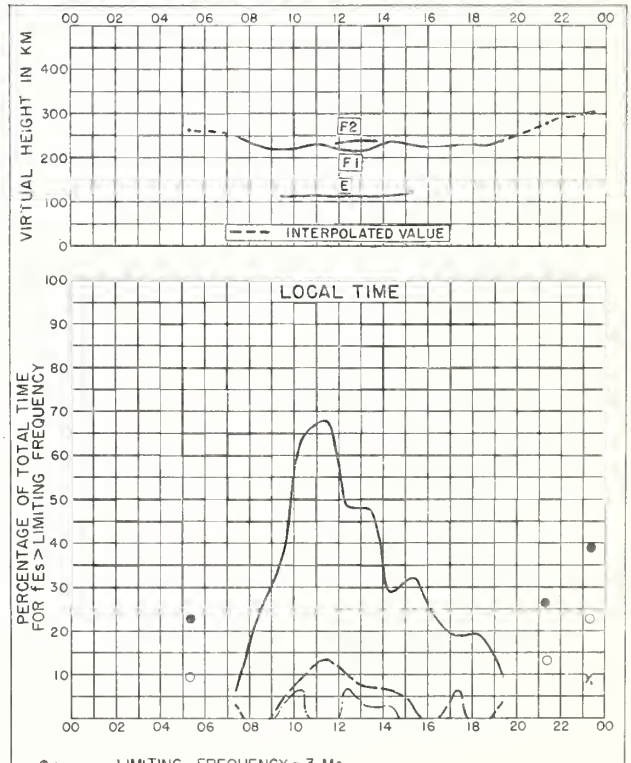

Fig. 60. CAMPBELL I. JULY 1949

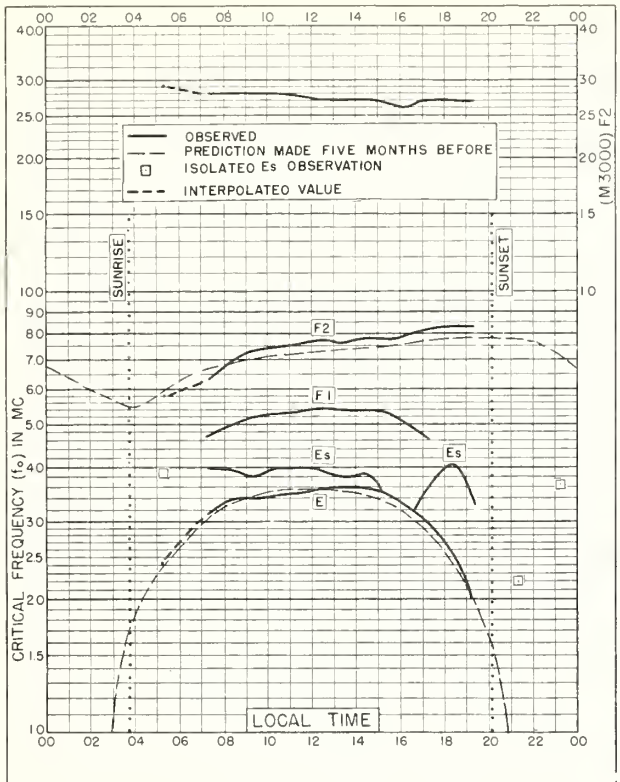

Fig. 61. CAMPBELL I.
52.5°S, 169.2°E DECEMBER 1948

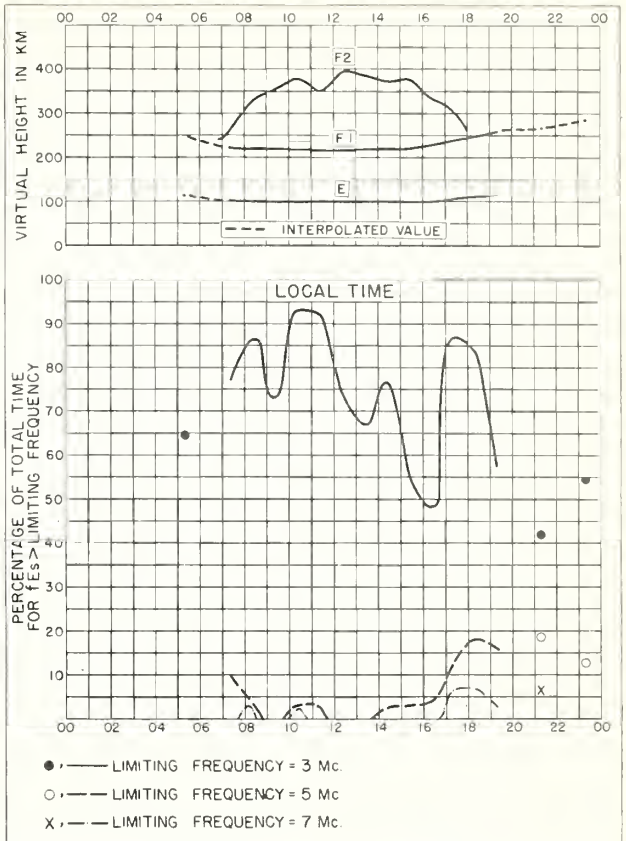

Fig. 62. CAMPBELL I. DECEMBER 1948

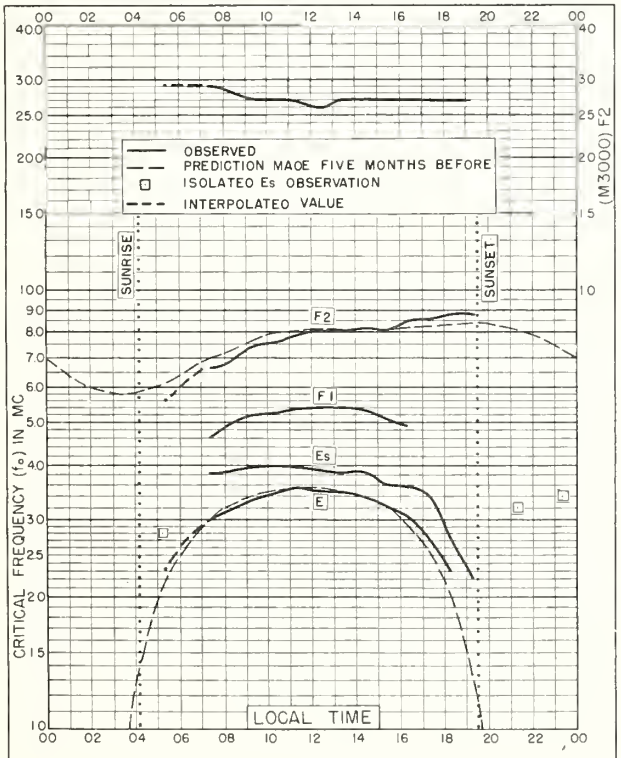

Fig. 63. CAMPBELL I.
52.5°S, 169.2°E NOVEMBER 1948

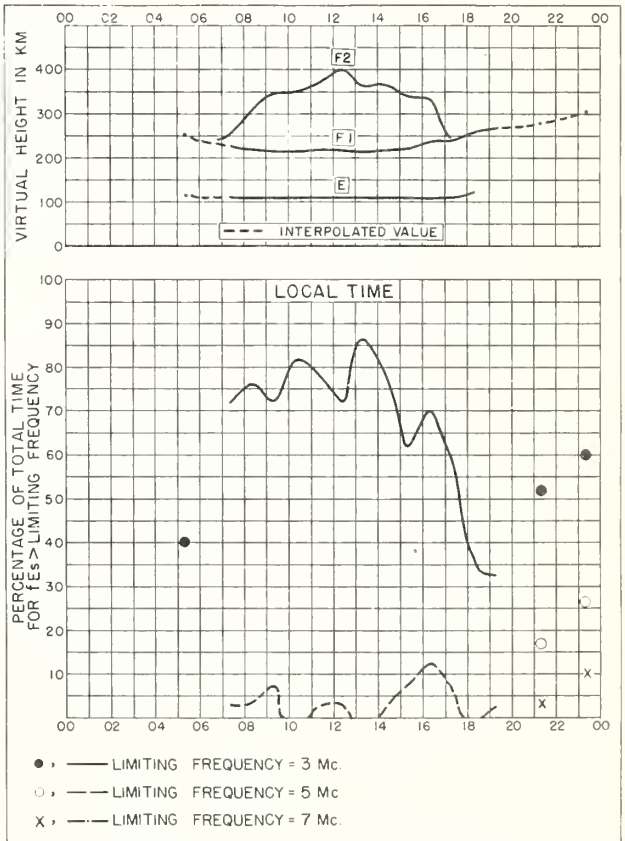

Fig. 64. CAMPBELL I. NOVEMBER 1948

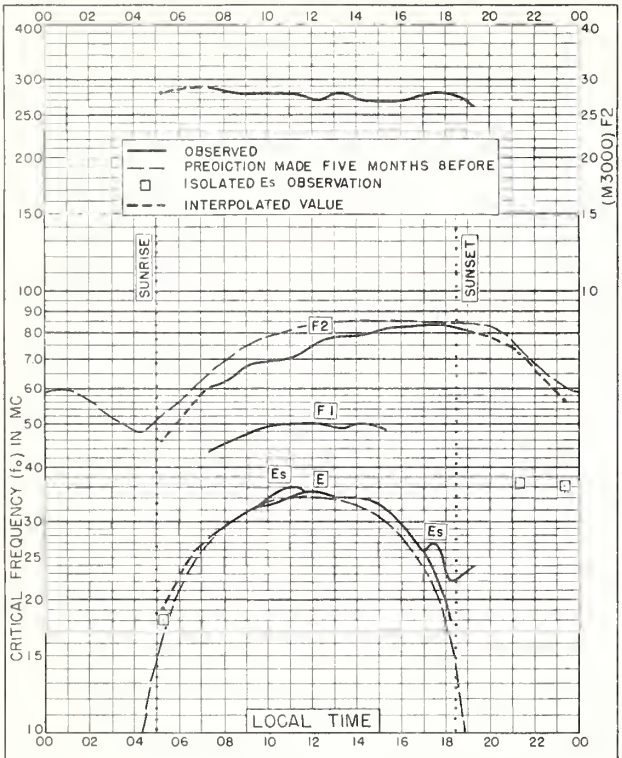

Fig. 65. CAMPBELL I.
52.5°S, 169.2°E OCTOBER 1948

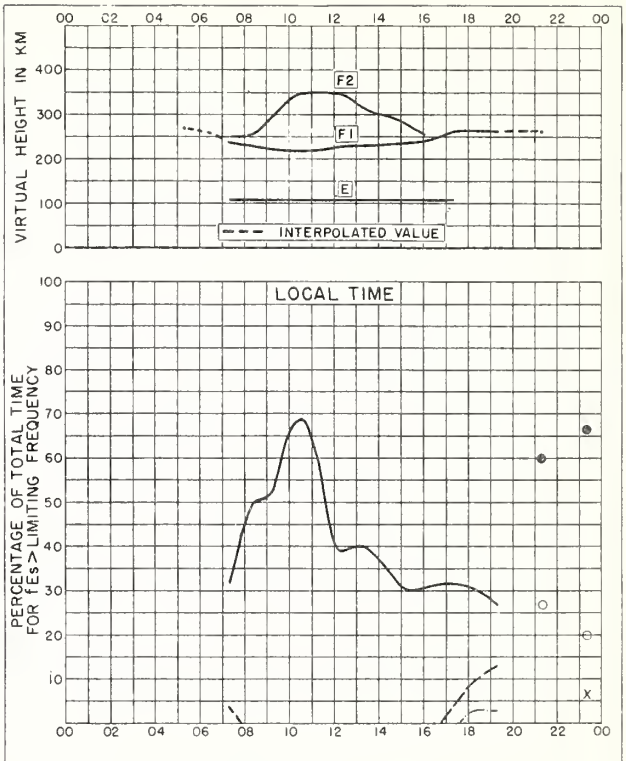

Fig. 66. CAMPBELL I. OCTOBER 1948

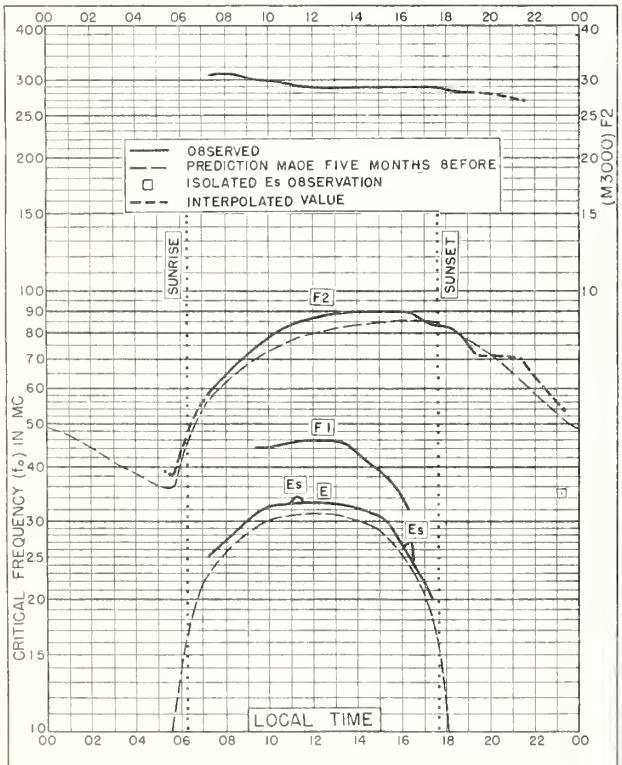

Fig 67. CAMPBELL I.
52.5°S, 169.2°E SEPTEMBER 1948

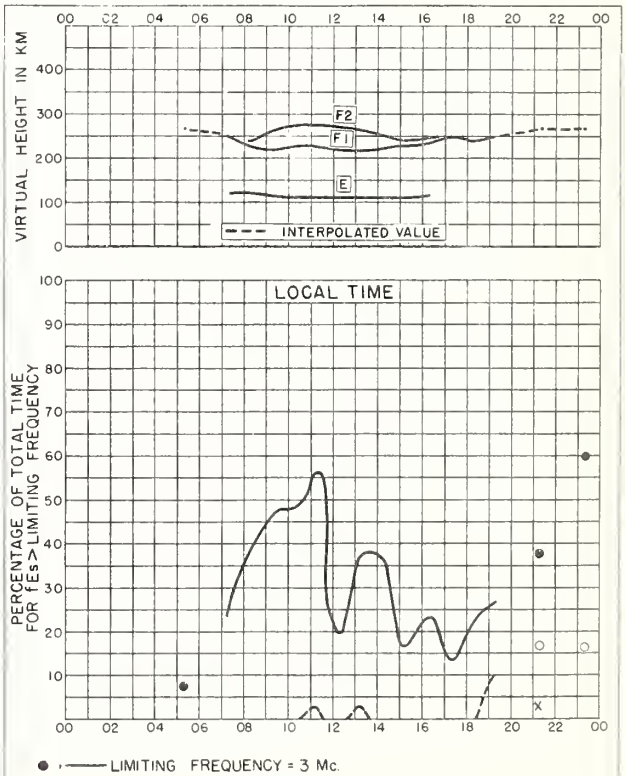

Fig. 68. CAMPBELL I. SEPTEMBER 1948

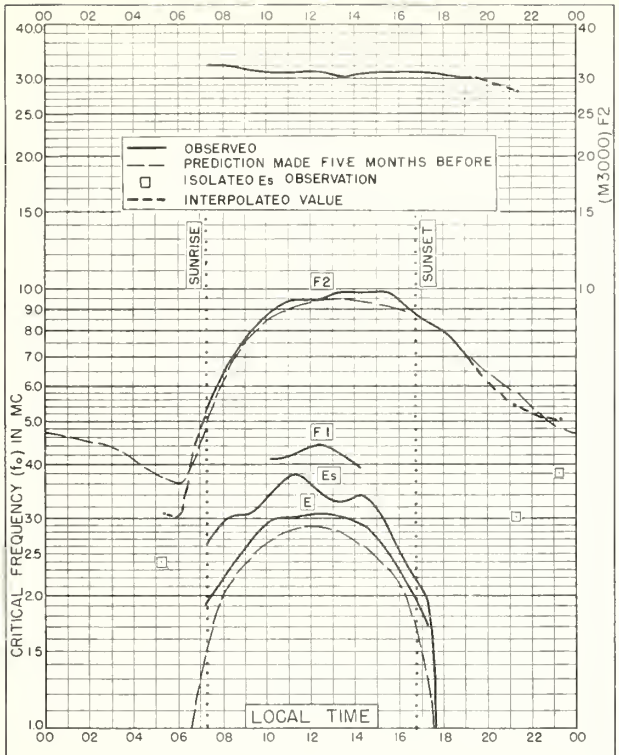

Fig. 69. CAMPBELL I.
52.5°S, 169.2°E AUGUST 1948

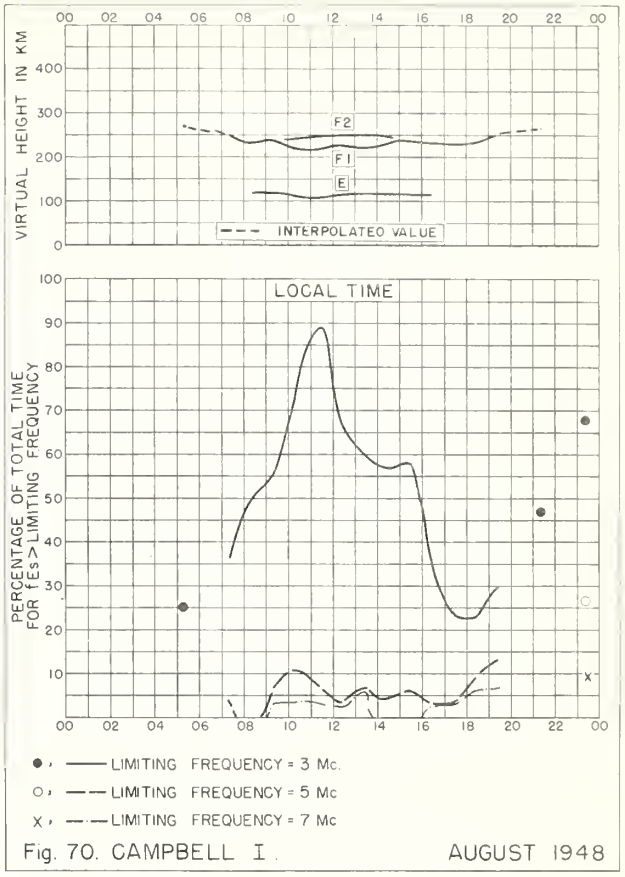

Fig. 70. CAMPBELL I. AUGUST 1948

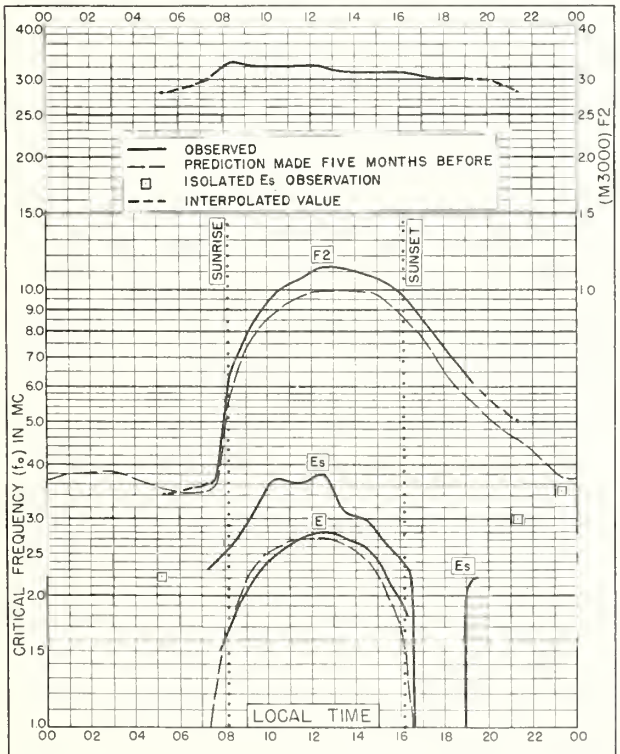

Fig. 71. CAMPBELL I.
52.5°S, 169.2°E JULY 1948

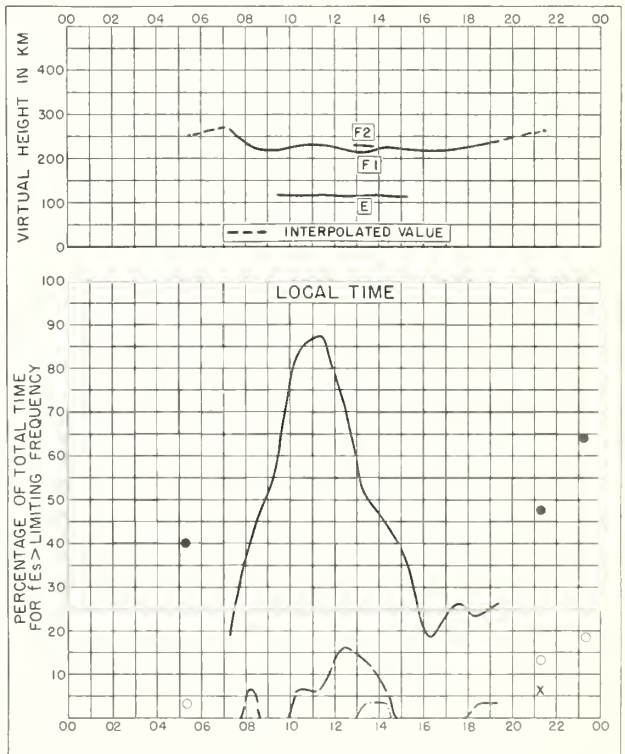

Fig. 72. CAMPBELL I. JULY 1948

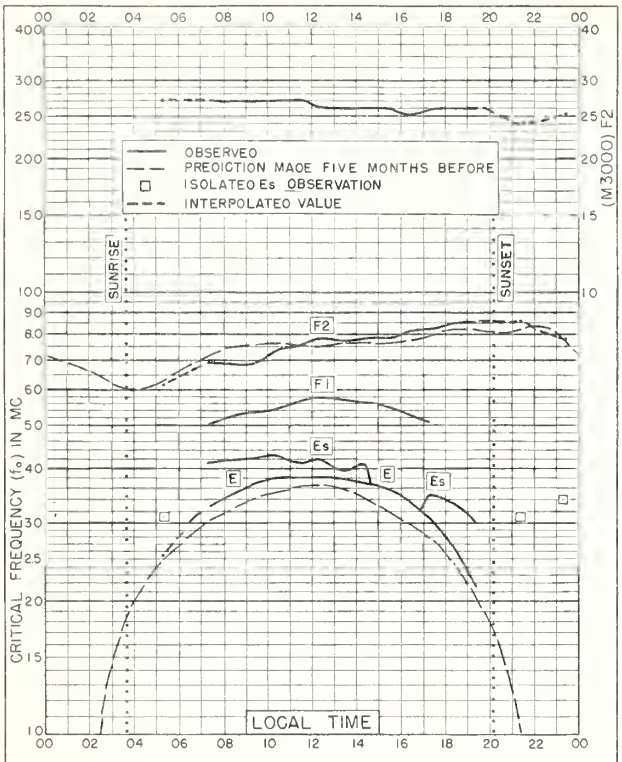

Fig. 73. CAMPBELL I.
52.5°S, 169.2°E DECEMBER 1947

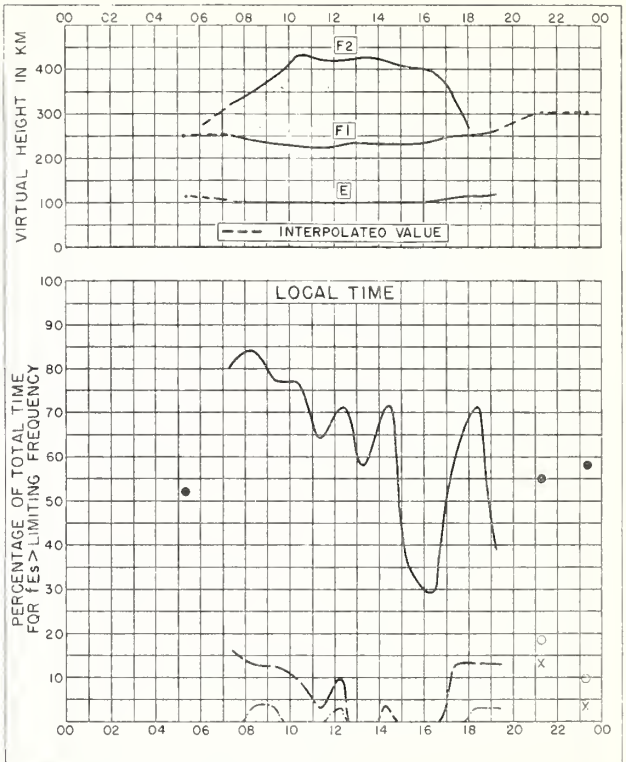

Fig. 74. CAMPBELL I. DECEMBER 1947

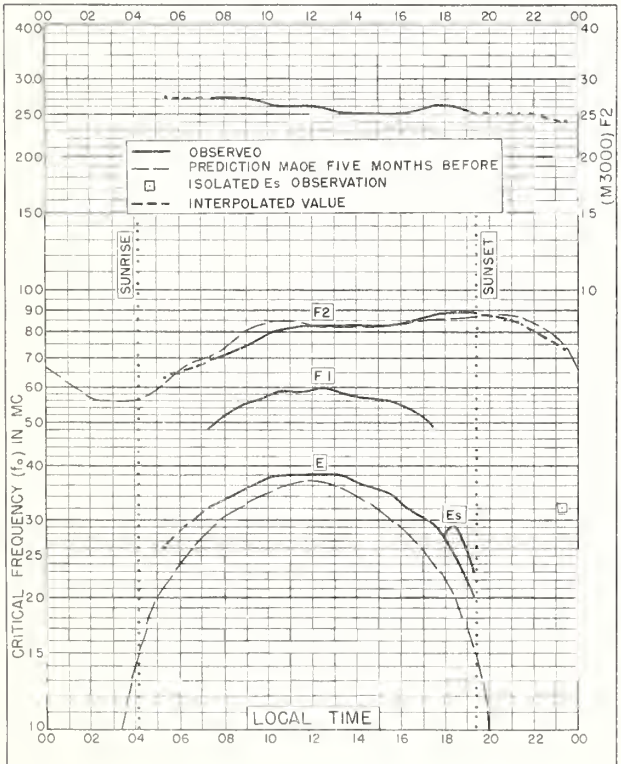

Fig. 75. CAMPBELL I.
52.5°S, 169.2°E NOVEMBER 1947

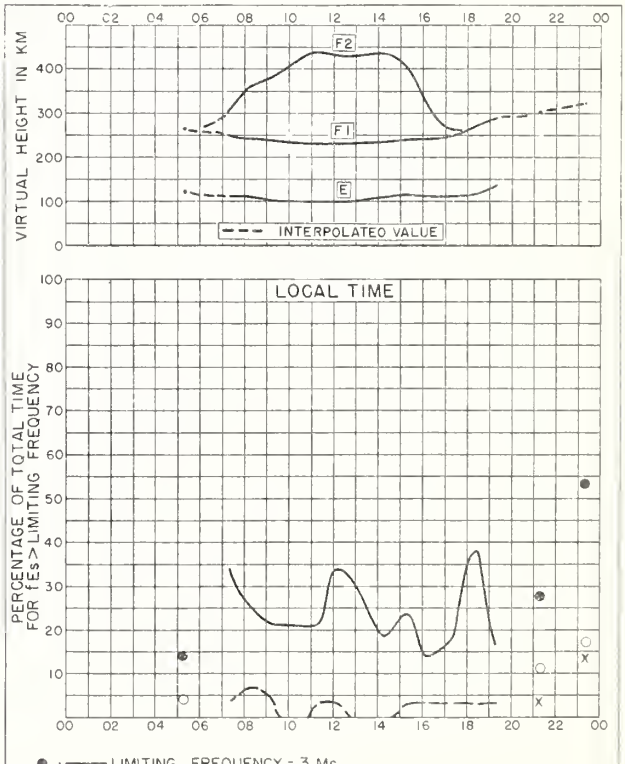

Fig. 76. CAMPBELL I. NOVEMBER 1947

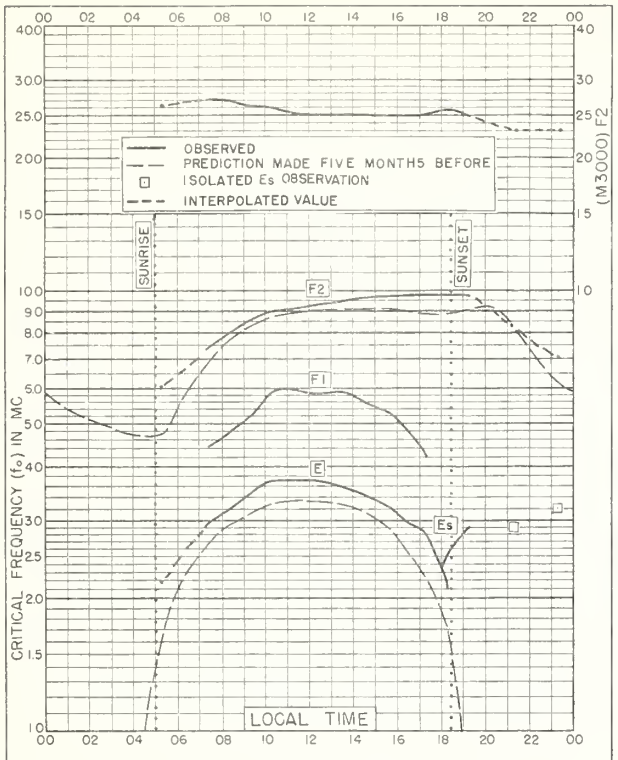

Fig. 77. CAMPBELL I.
52.5°S, 169.2°E OCTOBER 1947

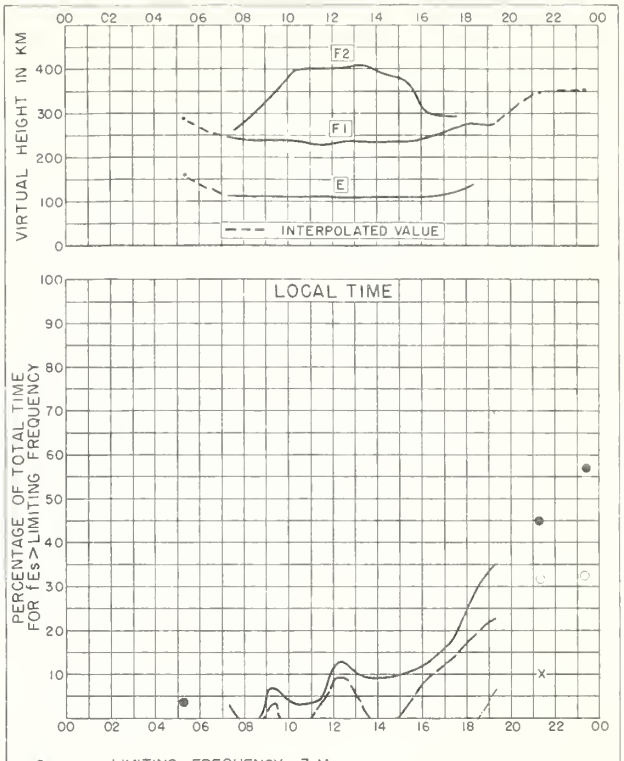

Fig. 78. CAMPBELL I. OCTOBER 1947

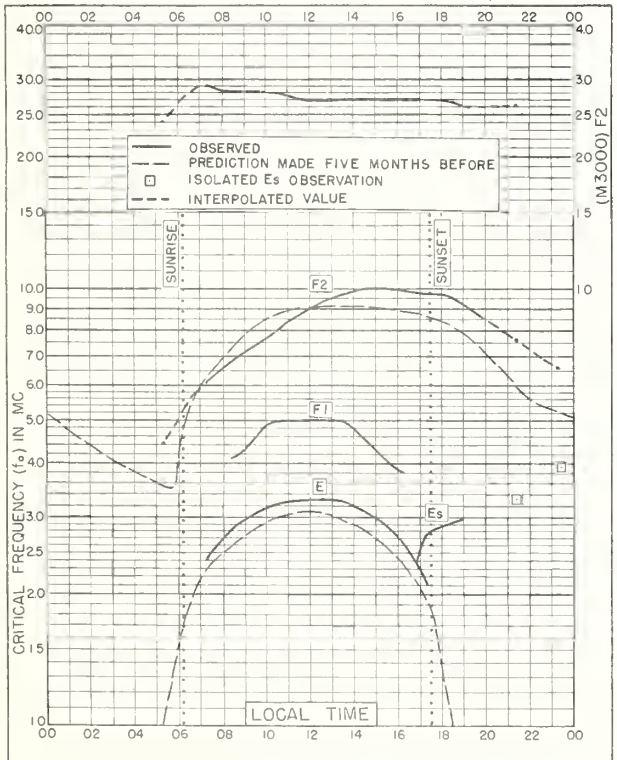

Fig. 79. CAMPBELL I.
52.5°S, 169.2°E SEPTEMBER 1947

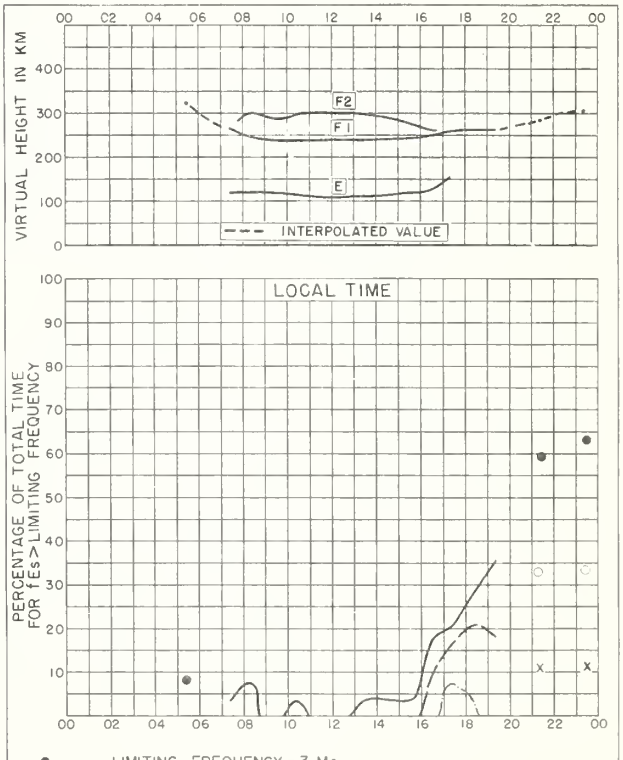

Fig. 80. CAMPBELL I. SEPTEMBER 1947

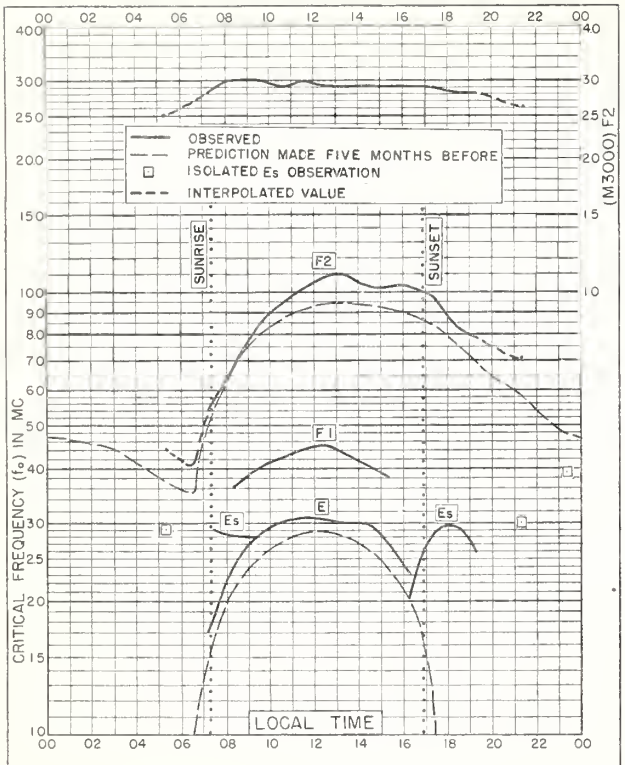

Fig. 81. CAMPBELL I.
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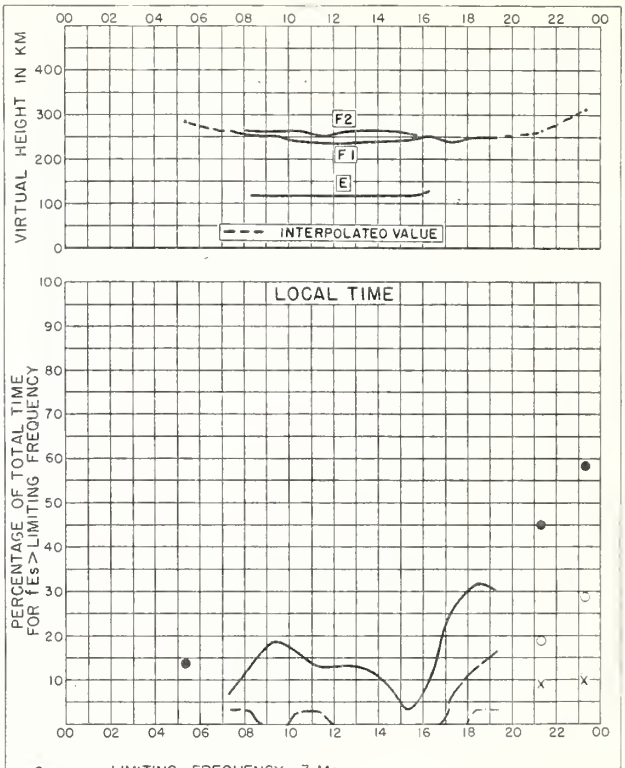

Fig. 82. CAMPBELL I. AUGUST 1947

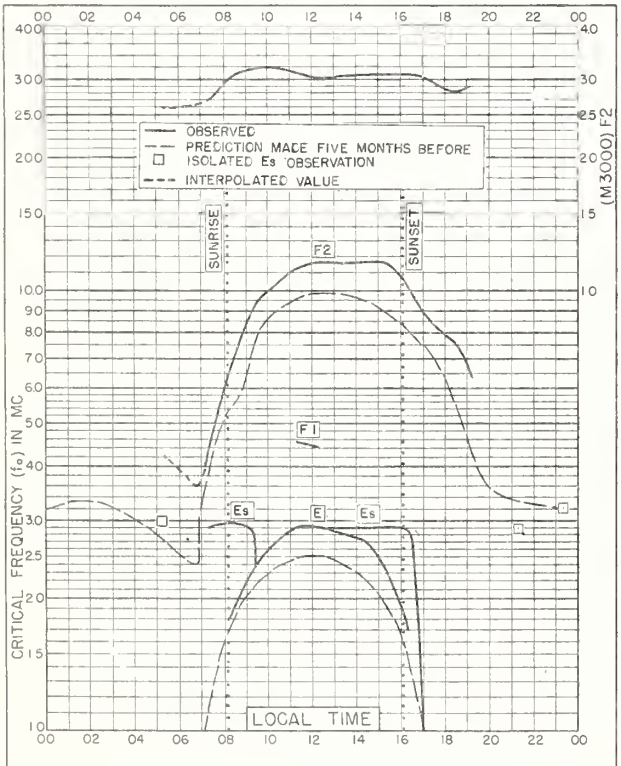

Fig. 83. CAMPBELL I.
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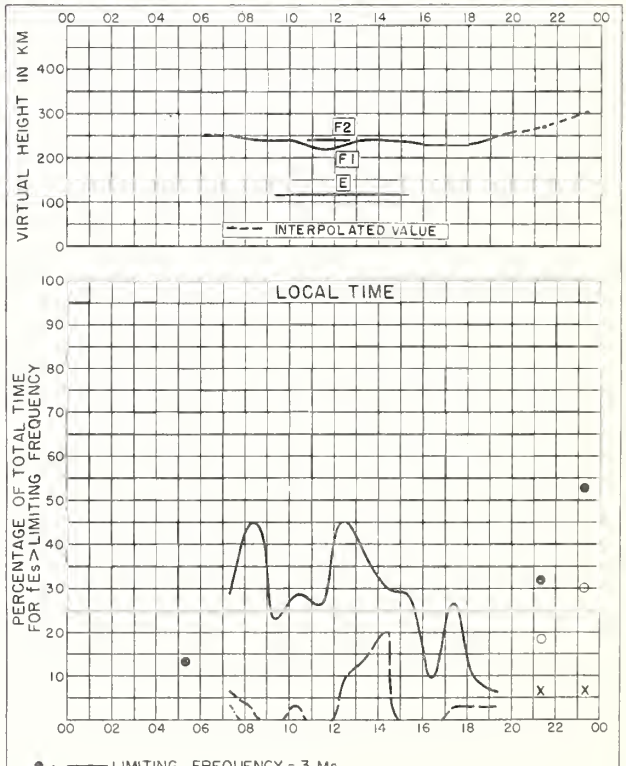

Fig. 84. CAMPBELL I. JULY 1947

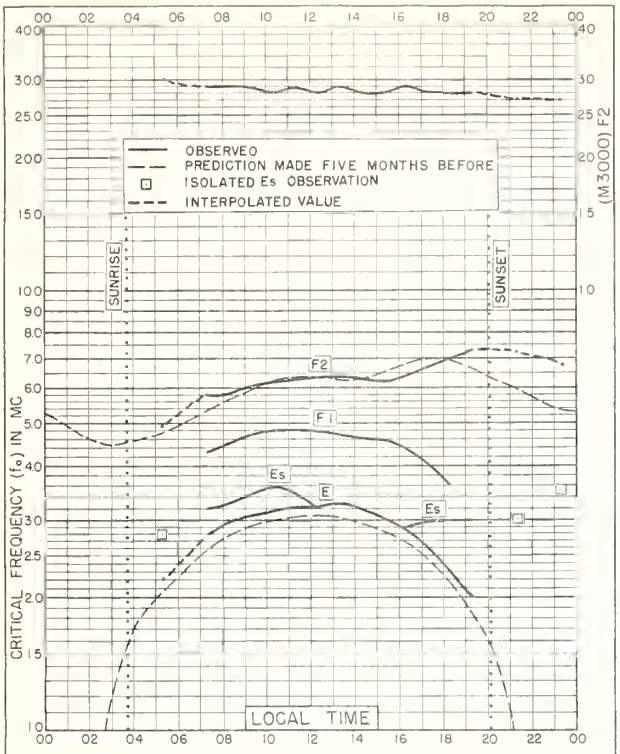

Fig. 85. CAMPBELL I.
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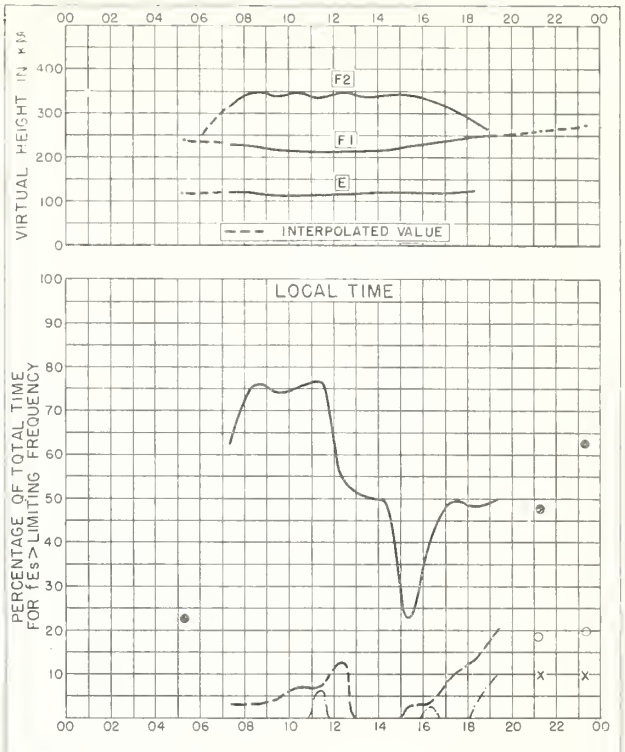

Fig. 86. CAMPBELL I. DECEMBER 1945

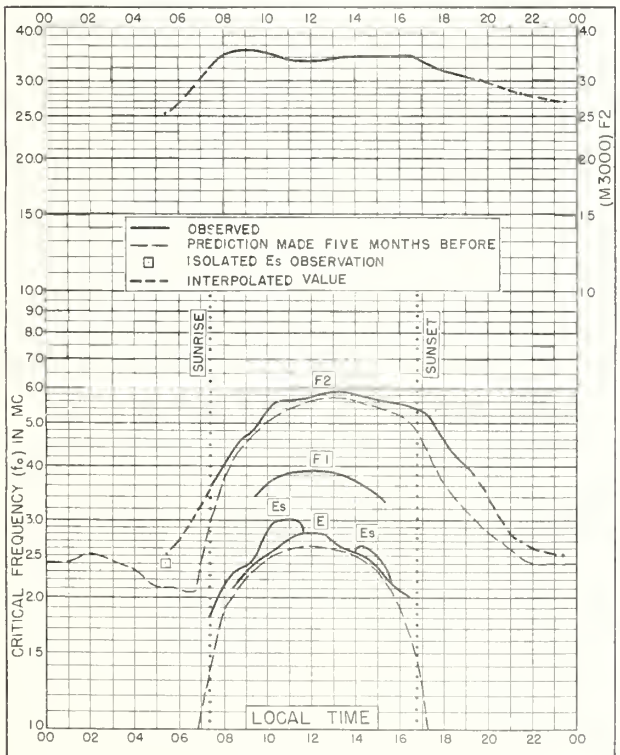

Fig. 87. CAMPBELL I.
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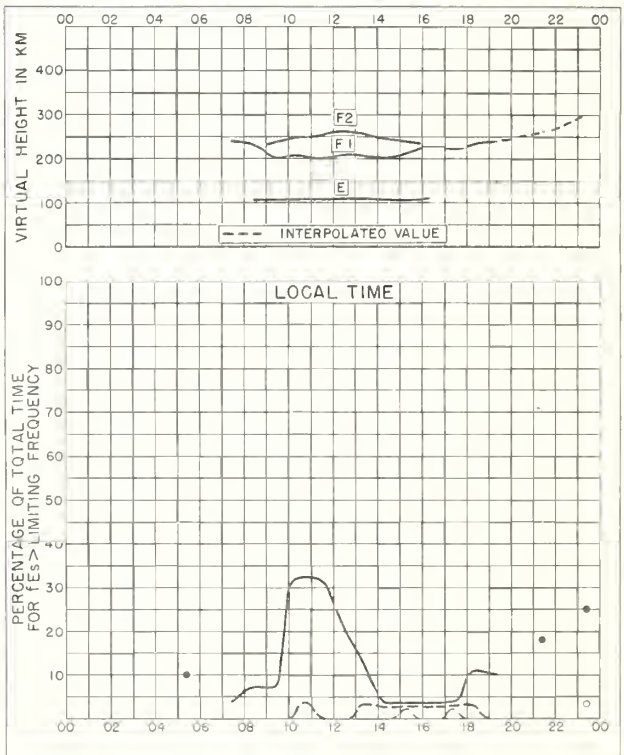

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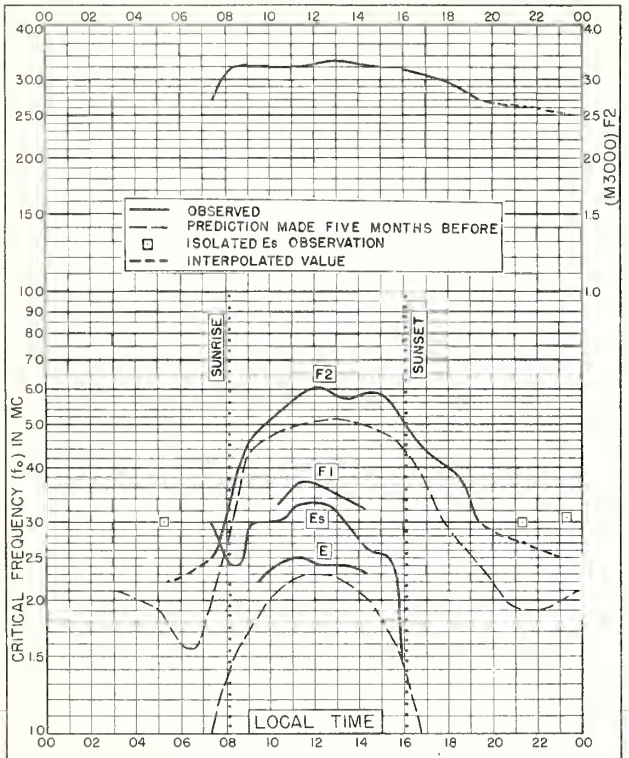

Fig. 89. CAMPBELL I.
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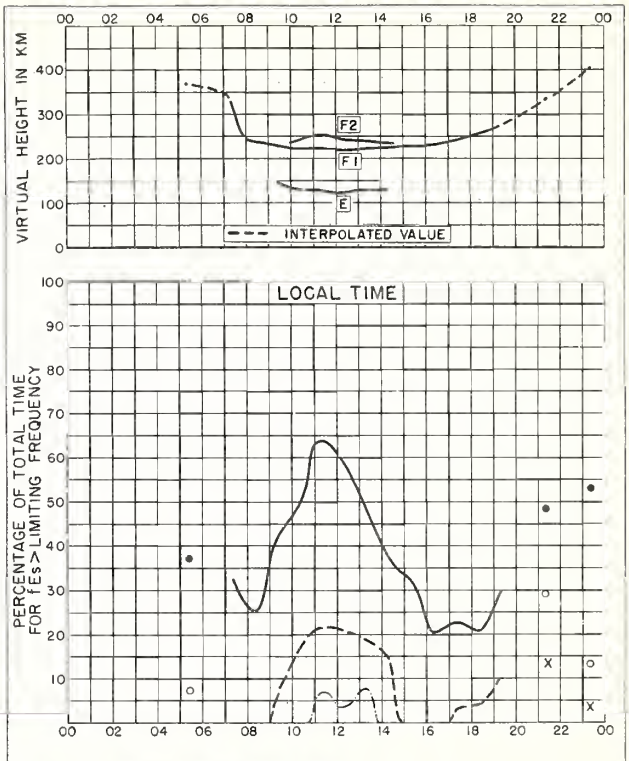

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CRPL and IRPL Reports

[A list of CRPL Section Reports is available from the Central Radio Propagation Laboratory upon request]

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Radio disturbance warnings, every half hour from broadcast station WWV of the National Bureau of Standards. Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

Weekly:

CRPL–J. Radio Propagation Forecast (of days most likely to be disturbed during following month).

Semimonthly:

CRPL–Ja. Semimonthly Frequency Revision Factors for CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL–D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499– , monthly supplements to TM 11–499; Dept. of the Navy, DNC 13 ( ) series.)

CRPL–F. Ionospheric Data.

Quarterly:

*IRPL–A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.

*IRPL–H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

NBS Circular 462. Ionospheric Radio Propagation.

NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:

IRPL–C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.

IRPL–G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.

IRPL–R. Nonscheduled reports:

R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.

R5. Criteria for Ionospheric Storminess.

R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.

R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.

R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.

R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.

**R11. A Nomographic Method for Both Prediction and Observation Correlation of Ionosphere Characteristics.

**R12. Short Time Variations in Ionospheric Characteristics.

R14. A Graphical Method for Calculating Ground Reflection Coefficients.

**R15. Predicted Limits for *F*2-Layer Radio Transmission Throughout the Solar Cycle.

**R17. Japanese Ionospheric Data—1943.

R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.

**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)

**R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.

R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.

**R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.

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**R33. Ionospheric Data on File at IRPL.

**R34. The Interpretation of Recorded Values of *fEs*.

R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.

IRPL–T. Reports on tropospheric propagation:

T1. Radar operation and weather. (Superseded by JANP 101.)

T2. Radar coverage and weather. (Superseded by JANP 102.)

CRPL–T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG–5.)

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